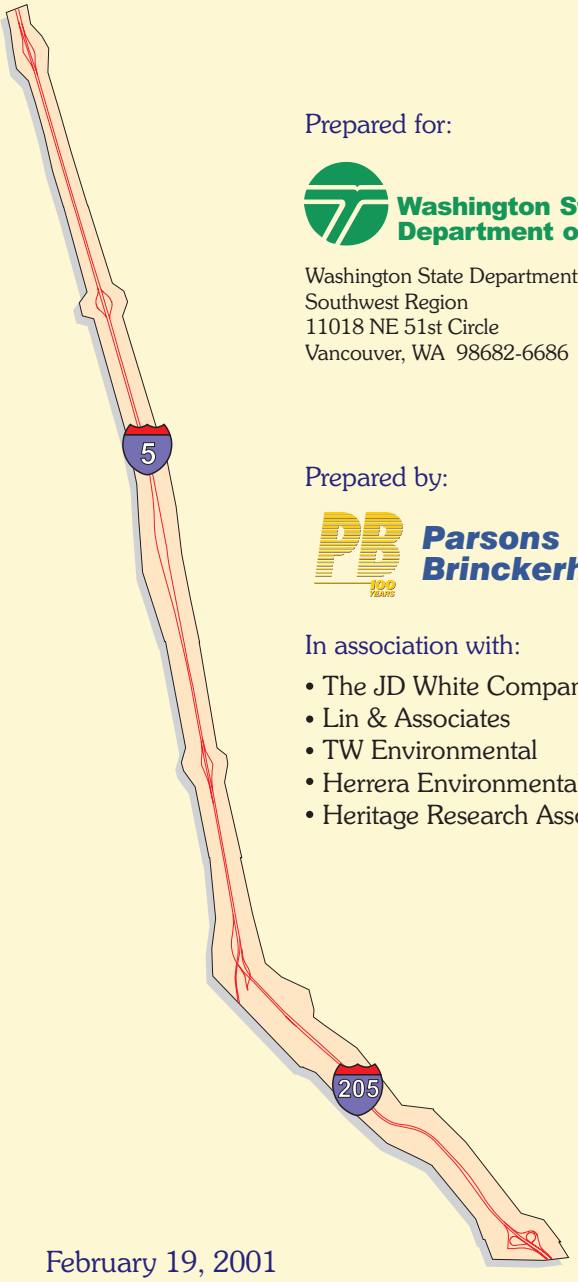
I-5 / I-205 North Corridor Study and
Route Development Plan

I-5 / I-205 North Corridor Strategy Report

SUMMARY REPORT

Final



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February 19, 2001

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I-5/I-205 NORTH CORRIDOR STRATEGY
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EXECUTIVE SUMMARY

The I-5/I-205 North Corridor study analyzed transportation needs in the north Clark County area with a focus on I-5 and I-205. The study corridor began at I-205 and NE 83rd Street/Padden Parkway and extended north 14 miles to the I-5 interchange with NW 319th Street/ NW La Center Road. The study examined short- and long-term transportation needs in the corridor, including mainline and interchange improvement needs. Additionally, the study concluded with a recommendation to move forward with the Access Point Decision Report for the proposed SR 502/NE 219th Street interchange with I-5 and for proposed ramp modifications at the NE 134th Street interchange. The study area and study corridor are shown in Figure A.

A number of issues regarding improvements in this corridor are addressed in this report, along with transportation planning activities of the jurisdictions involved and programming of funds. Population and employment growth, increasing traffic volumes on I-5 and interchanges, and trips passing through Clark County have resulted in the need for improvements to this corridor over the next 20 years.

Partners in the study included the Washington State Department of Transportation (WSDOT), the Regional Transportation Council (RTC), Clark County, the Cities of Vancouver, Battle Ground, Ridgefield, and La Center, C-TRAN, and the Port of Ridgefield. The study has also provided a broad- based public outreach effort, including several open houses, newsletters, website, and committees.

The I-5/I-205 North Corridor Study consisted of analyzing and evaluating several elements, including transportation, land use, economic, and environmental impacts of transportation alternatives. The study recommended 20-year improvement needs for the I-5 and I-205 mainlines and interchange improvements in the corridor. The study recommends that the project move forward with the federal Access Point Decision Report for the proposed SR 502/NE 219th Street interchange and recommendations for potential crossings of I-5 to provide relief at interchanges as well as to improve local circulation across I-5. The study also includes a recommendation to relocate the Salmon Creek Park-and-Ride to a site west of I-5. The study also provides direction on improvement beyond the 20-year outlook as the region looks to a 50-year vision of the corridor.

The Corridor Study includes a Route Development Plan for I-5 and I-205 as a companion document to this report, and preliminary design for the mainline and associated interchange and crossing improvements. The Study establishes short- and long-term improvement plans for the corridor and reviews possible project funding sources to implement recommended improvements.

Transportation improvement strategies for the corridor include existing interchange and arterial improvements; HOV and transit strategies, including Park-and-Rides and high-capacity transit facilities; bicycle and pedestrian facilities and connections; freight mobility; new interchanges; and mainline improvements to I-5 and I-205.

Three committees advised the project team: the Technical Advisory Committee, comprising agency planners and engineers; the Citizen and Business Advisory Committee, comprising

resident and business stakeholders; and the Policy Advisory Committee, comprising elected representatives of each of the partner agencies.

A unique and informative Economic Expert Panel discussion was held in June 1999 regarding the potential land use and economic impacts of transportation improvements in the corridor as they affect Battle Ground, Ridgefield, and La Center.

Context of This Report

The analysis, conclusions, and study recommendations resulting from this study are based on the Interim Year 2020 land use allocation and the regional EMME/2 model in effect at this time. The 2020 land use data set is based on the current Comprehensive Plans for Clark County, Battle Ground, Ridgefield, and La Center.

Several development concepts or proposals were presented during the conduct of this study. Many of these will result in changes to the Comprehensive Plan if they are adopted. The analysis, conclusions, and recommendations contained in this study report should be revisited if local governments make changes to their Comprehensive Plans.

Study Outcomes

The I-5/I-205 North Corridor Study included the following elements:

- Analysis of transportation, land use, economic, and environmental impacts of transportation design alternatives
- Recommended short and 20-year-long term improvements for the corridor, including mainline and interchange improvements
- A recommendation to move forward with the Access Point Decision Reports for the proposed SR 502/NE 219th Street interchange and modifications to the NE 134th Street interchange
- A recommendation not to include a new interchange in the 20-year plan on I-205 between NE 134th Street and NE 83rd Street
- Recommended new crossings of I-5 to provide relief to interchanges as well as to improve local circulation across I-5
- A recommendation to relocate the Salmon Creek Park-and-Ride west of I-5
- Direction on improvements that may be needed after the 20-year outlook
- Preliminary design and a Route Development Plan for I-5 and associated interchange and crossing improvements
- Short- and long-term improvement plans for the corridor
- Development of project and funding outlooks to implement recommended improvements

Figure B summarizes the corridor improvement recommendations.

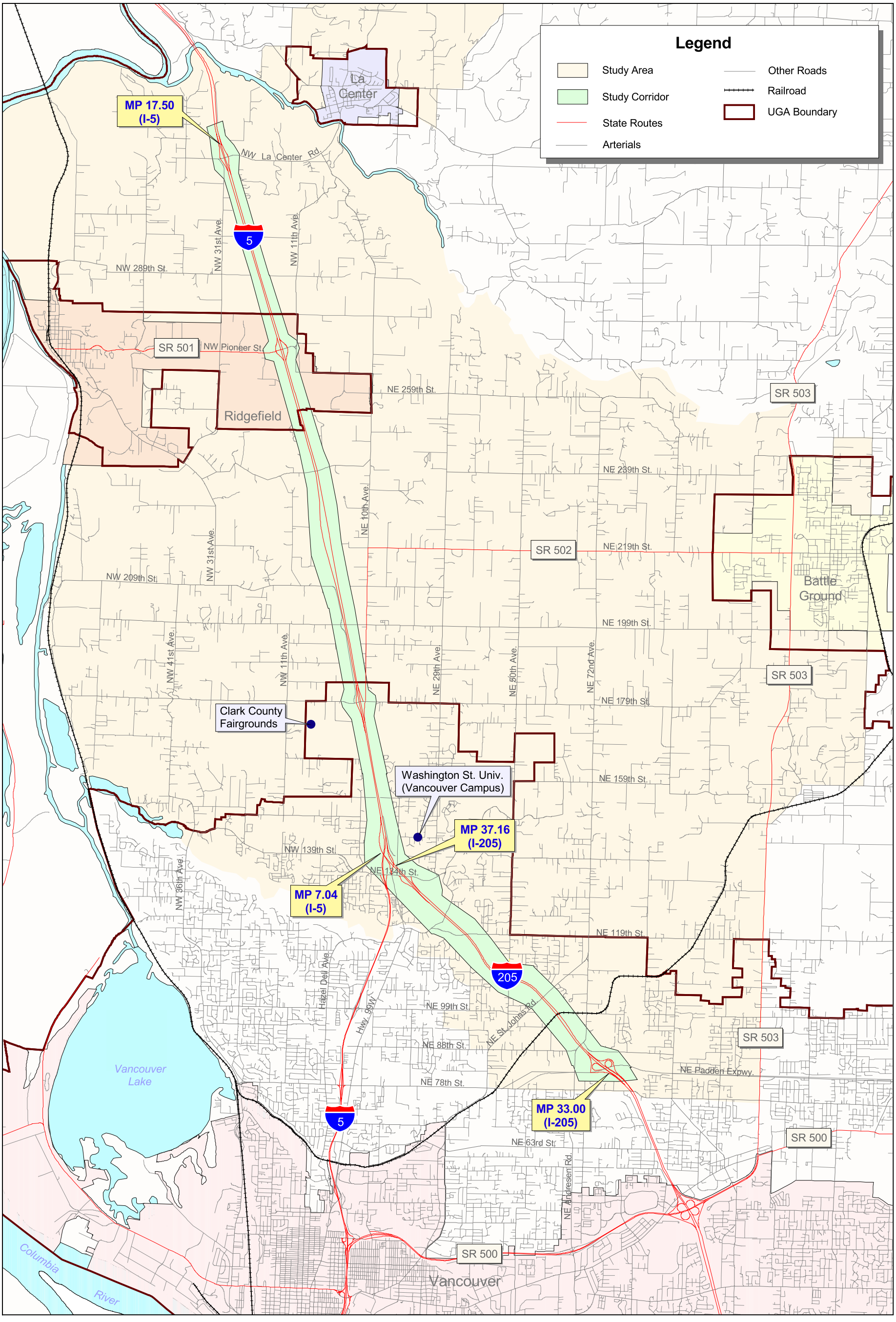

FIGURE A

I-5/I-205 NORTH CORRIDOR STUDY

Study Area and Study Corridor

N

1 0 1 Mile

Washington State Department of Transportation

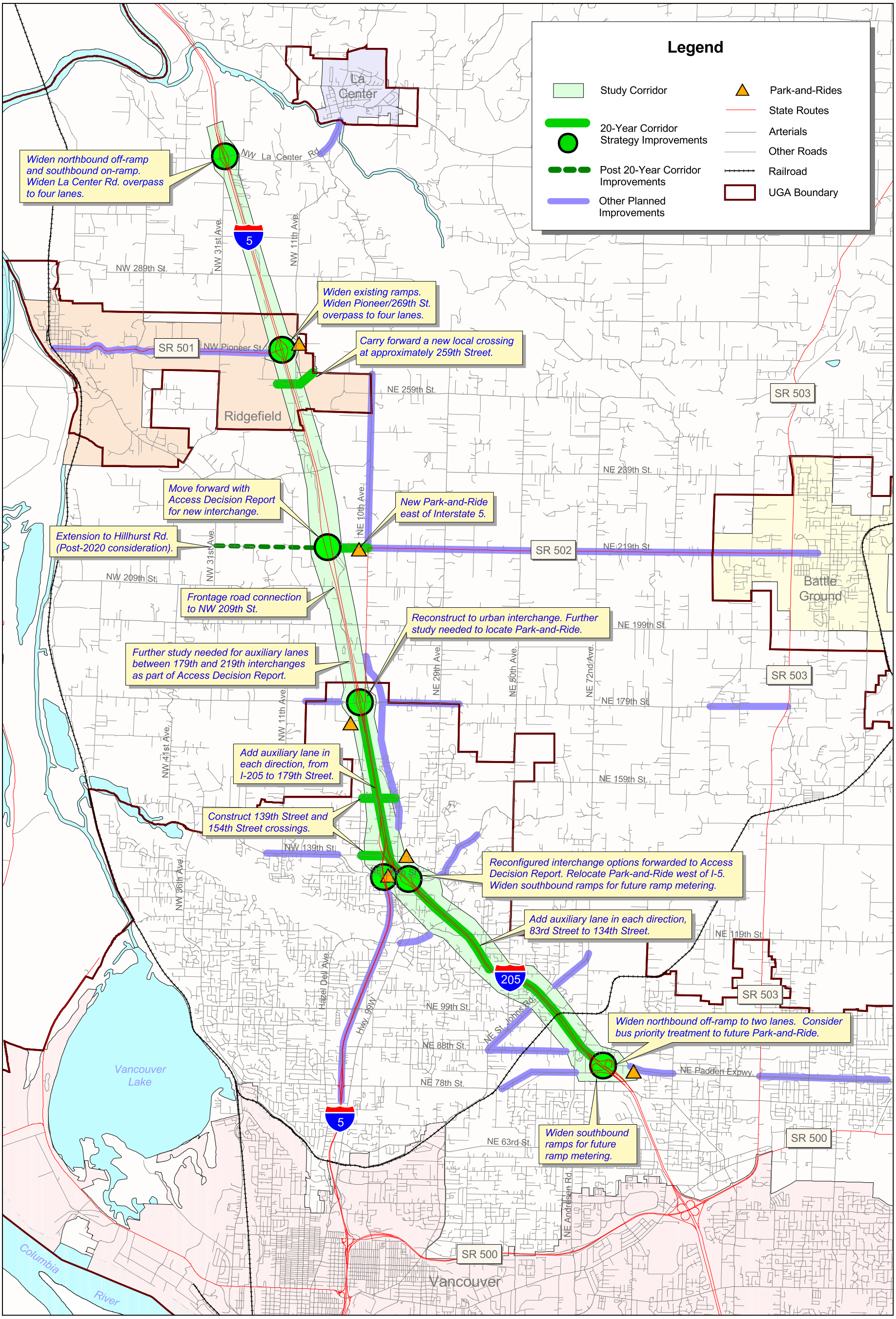

FIGURE B

I-5/I-205 NORTH CORRIDOR STUDY

Recommended Corridor Strategy Improvements

PB 100 YEARS

Washington State Department of Transportation

N

1 0 1 Mile

1.0 INTRODUCTION

Report Purpose

This report is a summary of the Corridor Study. A technical appendix has been produced that contains detailed alternative analysis and evaluation, as well as summary tables of the study findings.

Study Process

Figure 1 outlines the study process. Over the 2 years of the study, the planning horizon year was changed from 2017 to 2020.

A *Baseline Conditions Report* was developed for existing and 2020 no-build conditions. It was printed and distributed to agencies and the public in May 1999. An economic and land use panel discussion was held in June 1999. This panel, consisting of three national and three local economic and land use experts, discussed the land use implications of transportation improvements adjacent to three interchanges: Battle Ground (proposed NE 219th Street/SR 502 interchange), Ridgefield (NW Pioneer Street/SR 501, formerly known as NW 269th Street), and La Center (NW La Center Road/NW 319th Street).

A variety of transportation strategies and improvement alternatives were discussed and evaluated. These resulted in improvement and design recommendations at three interchanges (NE 83rd/Padden at I-205, I-5 at SR 501/NW Pioneer Street, and I-5 at NW La Center Road), and packages of design recommendations to forward to Access Point Decision Reports for three other interchanges (NE 134th Street, NE 179th Street, and proposed NE 219th Street/SR 502). Workshops were held to develop and evaluate design options at all of the interchanges and the I-5 and I-205 mainlines. Location options for the Salmon Creek Park-and-Ride, NE 179th Street Park-and-Ride, and a potential Park-and-Ride at the proposed NE 219th Street interchange were also discussed.

As a result of an interactive evaluation process with agency and committee members and public comments, a series of short- and long-term corridor improvement recommendations were developed and reviewed by the study advisory committees.

Study Purpose

The I-5/I-205 North Corridor study analyzed transportation needs in the north Clark County area with a focus on I-5 and I-205. The study corridor begins at I-205 and NE 83rd Street/Padden Parkway and extends north 14 miles to the I-5 interchange with NW 319th Street/NW La Center Road. The study examined short- and long-term transportation needs in the corridor, including mainline and interchange improvement needs. Additionally, the study concluded that WSDOT should move forward with Access Point Decision Reports for the proposed SR 502/NE 219th Street and NE 179th Street interchanges with I-5 and for proposed interchange modifications at the NE 134th Street interchange.

A number of issues regarding improvements in this corridor were addressed along with transportation and land use planning activities of the jurisdictions involved and programming of funds. Population and employment growth, increasing traffic volumes on I-5 and interchanges, and trips passing through Clark County have resulted in the need for improvements to this corridor.

Partners in the study include the Washington Department of Transportation (WSDOT), the Regional Transportation Council (RTC), Clark County, the cities of Vancouver, Battle Ground, Ridgefield, and La Center, C-TRAN, and the Port of Ridgefield. The study has also provided a broad-based public outreach effort including several open houses, newsletters, and committees.

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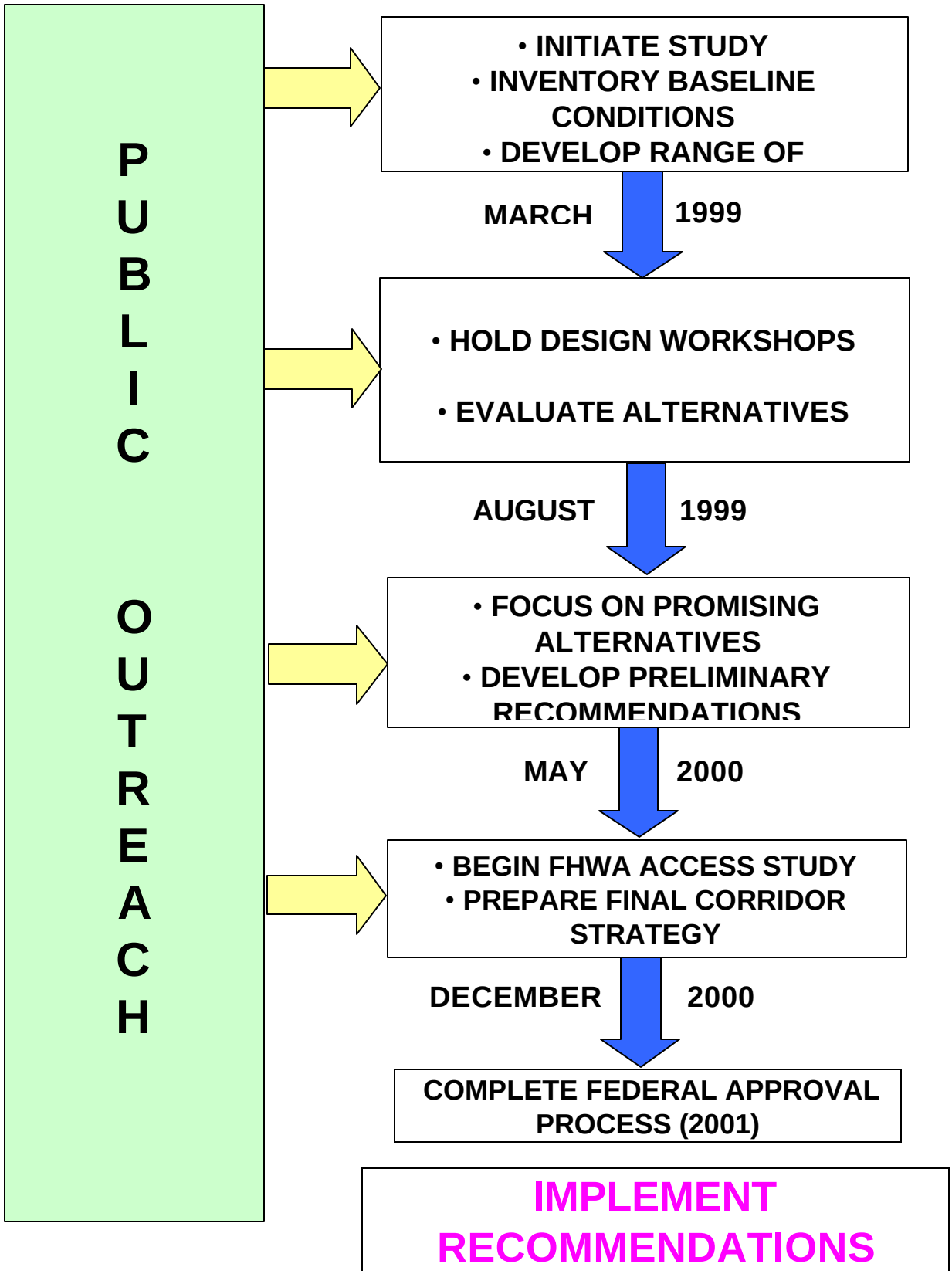
Detailed Analysis

Maps, figures, and graphics showing the detailed analyses, including travel forecasts, are contained in the technical appendix to this report.

Figure 1. I-5/I-205 NORTH CORRIDOR STUDY PROCESS



2.0 CURRENT AND FUTURE CONDITIONS

Summary

The study area for the I-5/I-205 North Corridor Study extends from NE 83rd Street/Padden Parkway interchange with I-205 north to the La Center/I-5 interchange, and from Ridgefield on the west to Battle Ground on the east. For design and environmental analysis purposes the study corridor was defined as 500 feet on each side of the mainline centerline, expanding to 1,000 feet on each side of the centerline at interchanges.

Figure 2 shows planned improvements in the corridor study area.

Corridor Function

I-5 and I-205 are Interstate Highways and Highways of Statewide Significance. Both I-5 and I-205 are classified as T-1 Freight and Goods Transportation System (FGTS) routes and Class 1 (limited) access highways. Access management is applied to arterials and is generally limited on arterials with interchanges on I-5 and I-205. NE 83rd Street (Padden Parkway) is the only limited access facility that interchanges with I-5 or I-205 in the study corridor.

Several agencies provide transportation service in the corridor. In addition to WSDOT, transportation providers include Clark County (roads), City of Ridgefield (roads), City of La Center (roads), City of Battle Ground (roads), C-TRAN (public transportation and paratransit), KWRL Transportation (school buses), Battle Ground School District (school buses), Vancouver School District (school buses), and Evergreen School District (school buses).

Intercity public transportation is provided by Greyhound and Amtrak. Both systems have depots in downtown Vancouver and provide regional service between Portland and Seattle and national service to points along the west coast and to other parts of the country.

Two C-TRAN Park-and-Rides are located within the study corridor: Salmon Creek (NE 134th Street and I-5) and Ridgefield (NW 264th Street at NW 11th Avenue). An informal Park-and-Ride that existed at the I-5/NE 179th Street interchange was removed during interchange improvements that occurred in 1998-1999. Current plans call for the NE 179th Street Park-and-Ride to be relocated to a site closer to the Fairgrounds. Sites for that relocation were identified and analyzed as part of this study.

I-205 consists of two lanes in each direction between NE 83rd Street and I-5. I-5 consists of two lanes in each direction between NE 134th Street and I-205 and four northbound travel lanes north of I-205, although a lane drop reduces the number of travel lanes to three south of NE 179th Street. From NE 179th Street north there are three northbound lanes on I-5. Southbound on I-5 from NW 319th Street, there are three travel lanes up to I-205. At the southbound I-5/I-205 junction, the left lane and center lane continue as I-5 southbound, while the center lane and right lane exit onto I-205 southbound. Both roadways continue southbound as two-lane facilities.

Most of the I-5/I-205 corridor is either rolling or flat terrain. The corridor from NE 83rd Street to NE 134th Street consists of gradual rolling terrain, with no significant grades except in the Salmon Creek basin. The corridor is relatively flat from the I-5/I-205 junction until SR 501, where it again becomes rolling as it approaches the East Fork of the Lewis River basin.

Pavement throughout the corridor is in relatively good condition, with the exception of a rough segment on I-5 between NE 179th Street and NE 134th Street.

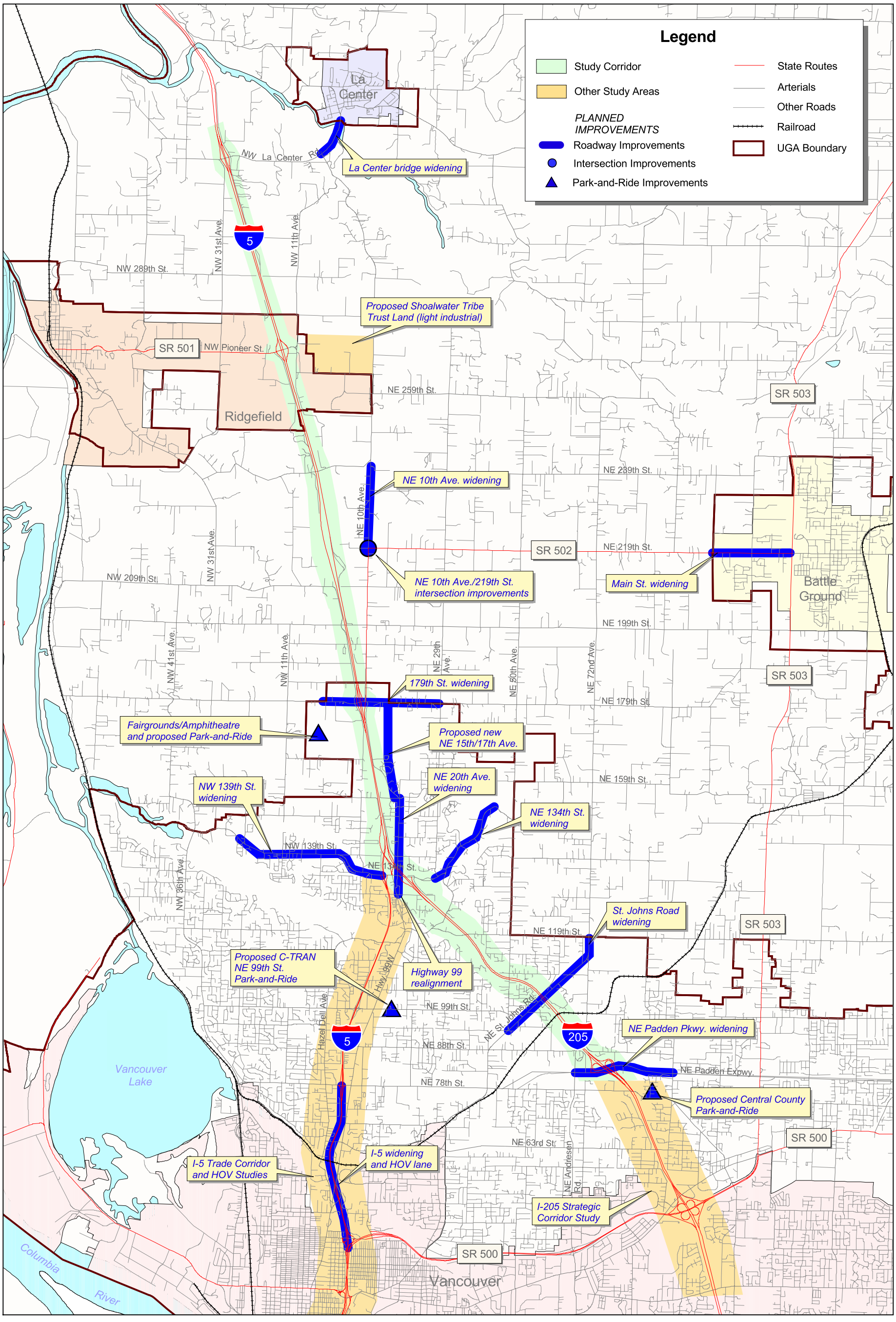


FIGURE 2

I-5/I-205 NORTH CORRIDOR STUDY

Planned Improvements in Corridor Study Area

Washington State Department of Transportation

WSDOT has indicated that all structures in the corridor are in good condition and should remain functional for at least 20 years. The only work planned is seismic retrofits on some structures, as noted in the Baseline Conditions Report.

The corridor is a mix of flat and rolling terrain. For the most part, I-5 is relatively straight, with some curves near the I-205 junction. I-205 has several vertical and horizontal curves along its length in the study corridor.

All curves are designed at or above the posted speed limit.

Present and Projected Operating Conditions

Current Daily and Peak Period Traffic Data

Current (1998) volumes on I-5 in the corridor range from 63,700 vehicles per day north of NW La Center Road to more than 88,000 vehicles per day between I-205 and NE 179th Street. Current volumes on I-205 range from 46,000 vehicles per day north of NE 134th Street to more than 58,000 vehicles per day south of NE 83rd Street.

Current Deficiencies

The following locations have been identified as below acceptable LOS standards (LOS D) under existing conditions (Year 2000).

- NE 134th Street at NE 20th Avenue
- I-5 northbound off-ramp at NE 179th Street/NE 10th Avenue/SR 502 intersection
- SR 500 at SR 503
- SR 500 at Ward Road
- SR 503 at NE 76th Street

The following intersections are reported to be approaching capacity (currently at LOS D, projected to be at LOS E within six years at current growth rates):

- NE 134th Street at the northbound I-5 off-ramp
- NE 134th Street at Highway 99
- Highway 99 at NE 99th Street
- Highway 99 at NE 78th Street
- Hazel Dell Avenue at NE 78th Street

2020 No-Build Modeling

The RTC's regional travel model was used to project where future level-of-service (LOS) deficiencies will occur. The regional model uses the EMME/2 modeling package. An Interim 2020 No-Build model was run to identify potential system deficiencies. The land use data set is considered "Interim" as it is expected to be replaced by a final 2022 land use data set in mid-2001.

The 2020 No-Build network developed for this analysis consisted of the Metropolitan Transportation Plan network outside of the study area, and the existing transportation network plus projects that local jurisdictions have committed to completing in the study area.

Significant increases in volumes are forecast throughout the study area. The highest percentage increases are forecast for SR 501/NW Pioneer Street (267 percent PM Peak Hour increase), NE 179th Street east of I-5 (167 percent increase), and I-5 (45-66 percent increase).

Travel demand (the number of trips) in the study area is expected to increase by as much as 131 percent between 1996 and 2020. Vehicle miles traveled (VMT) is projected to grow by up to 110 percent. The trip-making growth exceeds the VMT growth, which indicates that employment is moving outward, closer to where the work force lives.

Vehicle hours traveled (VHT) is a measure of congestion on the system. VHT is projected to grow by up to 164 percent between 1996 and 2020, indicating that many facilities will experience a higher level of congestion and many are projected to exceed capacity.

Year 2020 No-Build Forecast Growth in Employment and Households

The household and employment forecasts for 2020 ("Interim 2020") were developed for Clark County's 1998 Transportation Impact Fee Update. They are based on projections of county population growth from the State Office of Financial Management (OFM) and employment forecasts from the Federal Bureau of Economic Analysis (BEA). According to the forecasts, employment within the study area is projected to more than double. The number of households is projected to increase by 81 percent.

Future Improvements Identified in Other Plans and Studies

Improvement needs in the corridor have been identified as the result of several previously conducted studies, plans, and processes, including:

- *Highway System Plan* (HSP), which identifies long-range transportation improvements on the state highway system to accommodate growth, provide for economic development, improve high-accident locations, or preserve and protect the environment;
- *Metropolitan Transportation Plan* (MTP), administered by the RTC, which identifies improvement needs on the regional transportation system within Clark County; and
- *Clark County Comprehensive Growth Management Plan*, which comprehensively plans transportation improvements to accommodate the land use plan for the County.

The Washington State Growth Management Act requires consistency among these three documents.

Other plans or studies that have included the study corridor and have recommended improvements in the I-5 corridor include:

- *Salmon Creek/Fairgrounds Regional Road Plan*—This plan focused on the arterial system in the area between Salmon Creek and NE 179th Street. Improvements were recommended at the I-5/NE 134th Street interchange, and the I-5/NE 179th Street interchange. Realignment of NE 10th Avenue/SR 502 on the east side of I-5 and a collector overcrossing of I-5 in the vicinity of NE 154th Street were also recommended.
- *Highway 99/I-5 Intelligent Transportation Corridor*—This ongoing project by Clark County will develop ITS improvements for the corridor from the City of Vancouver to NE 134th Street.

- *Fairgrounds Master Plan*—This plan examined land improvements at the Fairgrounds and recommended the realignment of Delfel Road on the west side of I-5 at NE 179th Street to improve traffic operations associated with activities at the Fairgrounds.
- *Amphitheater Plan*—Clark County, in conjunction with Q Prime, is studying the feasibility of developing an up to 20,000-seat amphitheater and associated road improvements, including the Delfel Road realignment and improvements to the NE 179th Street interchange.

Accident Analysis and HSP Safety Improvement Plan

The 1996 accident rate along all of this section of I-5 (from the 1996 Washington State Highway Accident Report) was 0.5 - 0.6 accidents per million VMT, with a multi-year rate of 0.5-0.7 accidents per million VMT. For I-205, the 1996 accident rate was 0.5 - 0.6 and the multi-year rate was 0.5 - 0.7. Statewide, the average accident rate for state highways was 1.88 in 1996, while in the Southwest region the average accident rate was 1.51 accidents per million VMT. Accident rates compared to similar sections are below the statewide average.

Accidents tend to be rear-end accidents attributable to vehicles stopped on off-ramps, angle accidents associated with merging and lane changes, and accidents that involve objects being struck as vehicles leave the roadway at a high rate of speed.

Based on the frequency and type of recurring accidents, the following sections of the study corridor are considered high-accident corridors:

- I-5 between NE 134th Street and NE 179th Street
- I-5 southbound between NW 319th Street and NE 179th Street
- I-205 in the vicinity of the NE 83rd Street interchange

I-5 also has several high-accident locations. These are:

- Northbound at the NE 134th Street interchange
- Northbound at the NE 179th Street interchange
- Both directions at the SR 501/NW Pioneer Street interchange

I-205 has a high-accident location near the NE 83rd Street interchange.

Environmental Conditions

The existing environmental conditions analyzed for this study pertain to earth, water, vegetation, wildlife, land use, archaeological and historic resources, noise, air quality, and hazardous waste. Because the study corridor area is quite large, the analysis focused only on the general character and quality of each environmental element.

The overall topography of the study corridor can best be described as rolling or undulating. The highest elevations are associated with small knolls or terraces, while the lowest elevations are found along the deeply incised and narrow stream drainages that cross the study area. The steepest slopes within the study corridor are also associated with the stream corridors.

According to the Geological Hazard Ordinance Areas mapping maintained by the Clark County Geographic Information System Department, there are no areas within the study corridor identified as having historic or active landslide activity (Clark County, 1998). Slopes in the

majority of the project corridor have grades of 15 percent or less, which have a lower risk of landslides or instability.

Soils in the majority of the study corridor are listed by the SCS as a Hillsboro-Gee-Odne association. This association consists of medium-textured soils that are deep and well to poorly drained. The remainder is composed of Sara soils. Pockets of hydric Cove and Semiahmoo soils also occur throughout the study corridor area, especially in low-lying areas.

No unique physical features lie within the study corridor. Unique physical features are those areas or landforms with unusual geological quality or structure, such as bluffs, cliffs, gorges, large rock outcroppings, basalt spires, and lava flows. There are no known rock outcrops or exposed bedrock deposits along the study corridor. The rolling and undulating topography of the study corridor is common in the western part of Clark County in the vicinity of the Columbia River.

The project study corridor is located within six separate watershed sub-basins of the Columbia River. Wetlands are abundant along the I-5 and I-205 study corridor. In addition to the streams, many of the riparian corridors have seeps on side slopes, which may also be jurisdictional wetlands. Several riparian wetland corridors within the study corridor run parallel to I-5 and I-205.

According to the Flood Insurance Rate Maps prepared by the Federal Emergency Management Agency (FEMA), the majority of the study corridor is located within Zone C, an area of minimal flooding (FEMA, 1982; 1986). Within the study corridor, the FEMA mapping has identified 100-year floodplains along the south branch of Gee Creek, as well as Salmon Creek and Curtin Creek (FEMA, 1982; 1986).

Habitats for federal- and state-listed species recorded for Clark County and adjacent areas are not found within the study corridor. The two listed species most likely to be found within the study corridor are the tall bugbane (*Cimicifuga elata*), which is state-listed as threatened and is found along riparian corridors, and the small-flowered trillium (*Trillium parviflorum*), which is state-listed as sensitive and is found in forested areas.

The major drainages in the study corridor function as wildlife movement corridors.

Findings and Constraints

The Baseline Inventory Report (1999) provided a wealth of information about the corridor. The findings will be important in developing alternatives to respond to transportation needs in the corridor and, when combined with the identified physical and environmental constraints, will help to create a RDP that addresses the issues and presents a workable transportation solution for the corridor.

Figures 3 and 4 summarize the deficiencies and constraints in the study corridor.

Land Use

- Predominant land uses in the study corridor range from urban commercial and residential development on the south end of the corridor to rural land uses on the north end. The Ridgefield Junction area at NW Pioneer Street is an emerging industrial node.
- Study area households are projected to grow by 105 percent between 1996 and 2020, while employment is projected to increase by 146 percent. This exceeds the countywide growth rates of approximately 63 to 64 percent for both households and employment.

- UGAs with the highest growth rates include Ridgefield, La Center, and Battle Ground. The Salmon Creek/Washington State University (WSU) area of the Vancouver Urban Growth Area (UGA) is also projected to have a high growth rate.
- Corridor improvements may facilitate land use development in and out of the corridor.
- Several interchanges are seen as key access points to growing communities, neighborhoods, and community services. Development of land around these interchanges will affect the LOS at these interchanges.
- Improvements to the NE 134th Street/I-5 interchange, including ramp modifications and Park-and-Ride relocation, would likely require significant right-of-way acquisition.
- The proposed NE 219th Street interchange, which would require significant right-of-way acquisition, is outside of the UGA.
- The community has raised concerns about consistency between long-term land use and transportation planning.

Transportation

- Both I-5 and I-205 are Interstate routes that provide for regional commuter travel. Both routes carry Interstate and regional freight traffic. Truck traffic constitutes between 9 and 13 percent of total traffic.
- I-5 is a Priority Trade Corridor between Mexico and Canada. It is also a crucial transportation link to the Ports of Ridgefield, Vancouver, and Portland.
- I-5 has several high-accident locations, including southbound between NW 319th Street and NE 179th Street; both directions between NE 134th Street and NE 179th Street; and at the NE 134th Street (northbound), NE 179th Street (northbound) and NW Pioneer Street (both directions) ramps.
- I-205 has a high-accident location near the NE 83rd Street interchange.
- Many mainline accidents are attributable to high or excessive rates of speed or driving while impaired or drowsy. Accidents on ramps appear to be attributable to substandard merge areas (on ramps), speed differential between through, entering, and exiting traffic, or queues extending near or onto the freeway mainline (off ramps).
- Three locations are currently considered deficient (LOS E or F) during the p.m. peak hour: NE 134th Street at 20th Avenue, I-205 southbound off ramp at NE 83rd Street, and I-5 southbound off ramp at NE 179th Street.
- Study area VMT are projected to increase by 110 percent between 1996 and 2020, while VHT will grow by 164 percent.
- Work trips will grow commensurate with the increase in the number of households (112 percent), while the total number of trips will grow by 131 percent, exceeding the growth rates for both households and employment. This indicates that increased employment in the study area will attract trips from outside of the study area.
- Higher growth in the number of trips made compared to VMT, which is the realization of building out the current land use plans, reveals that destination land uses, such as job locations and commercial centers, are projected to be developed closer to residential areas.

- Peak hour traffic volumes over the next 20 years are projected to increase between 45 and 116 percent on I-5 (depending on location within the corridor), while for I-205 they are projected to increase by 40 to 60 percent.
- Daily traffic volumes over the next 20 years are projected to increase by 50 to 100 percent on I-5 (depending on location within the corridor) and by 45 to 80 percent on I-205.
- Daily and peak period traffic volumes on arterial roadways in the study area are projected to increase substantially, and in some cases more than double, over the next 20 years.
- Based on 2020 projections on a No-Build network, several locations are projected to be deficient (LOS E or F) during the p.m. peak hour: I-5 between NE 134th and NE 179th Streets, I-205 between SR 500 and NE 83rd Street, SR 502 between I-5 and Battle Ground, SR 501/NW Pioneer Street between NW 11th and Ridgefield, SR 503 between Fourth Plain/ SR 500 and Battle Ground, NE 134th Street between NE 10th Avenue and Rockwell Drive (including the northbound I-5 and I-205 off ramps), NE 179th Street between Delfel Road and the NE 29th Avenue ramps at I-5 and NE 179th and NW Pioneer Streets; I-205 northbound off ramp to NE 83rd Street, La Center Road from I-5 to La Center, and NE 72nd Avenue from NE 83rd Street to NE 219th Street.
- 2020 No-Build modeling indicates that the section of I-5 between NE 179th Street and NW 319th Street will be operating at LOS D, which is below WSDOT's LOS C standard for Rural Interstate highways.
- Seventeen corridor bridge structures have been identified by WSDOT bridge inventories as needing to be seismically retrofitted over the next 20 years to be improved to current standards.

Physical, Environmental, and Cultural Resource Constraints

Based on field reconnaissance and analysis of information collected from WSDOT, Clark County, and other agencies, several potential constraints to future corridor improvements have been identified.

Physical Constraints— A review of the 2020 travel demand indicates that most of the corridor and supporting arterials will operate at a deficient level of service. To maintain levels of service that meet WSDOT and local standards, significant improvements are necessary. The following physical constraints may inhibit or limit future corridor improvements:

- ***I-5/I-205/NE 134th Street Interchange Area***: Several freeway overcrossings and undercrossings are likely to be impacted by any reconstruction of the I-5/I-205 freeway-to-freeway connection. This area has developed near the existing freeway facilities, making it likely that modifications to and right-of-way acquisition for this interchange complex will be constrained by the built environment.
- ***Salmon Creek Park-and-Ride:*** Improvements to the I-5/I-205/NE 134th Street interchange complex recommended as a result of this study and improvements identified in the County's Salmon Creek/Fairgrounds Regional Road Plan may impact the location of this Park-and-Ride.
- ***NE 20th Avenue Overcrossing of I-205***: The existing bridge structure is not wide enough to accommodate the ultimate five-lane arterial cross-section with bike lanes and sidewalks (total width = 70 feet) for NE 20th Avenue over I-205.

- ***I-5 Undercrossing of NE 134th Street***: The length of the overpass, which results in a width of the undercrossing of 67 feet, constrains future widening of I-5. The undercrossing may need to be widened to accommodate lanes. Additionally, any widening of NE 134th Street would require significant widening of the bridge structure.
- ***I-5/NE 179th Street Interchange***: NE 179th Street underneath I-5 is 44 feet wide between bridge piers. Any future improvements to NE 179th Street beyond the interim widening project recently completed will require reconstruction of the I-5 overpass and widening of the undercrossing to accommodate widening of NE 179th Street. Additionally, the proximity of frontage roads (Delfel Road and Union Road), ramps, and the intersection with SR 502/NE 10th Avenue will constrain ramp improvements at this interchange. The County is currently considering a proposal to realign Delfel Road approximately 300 feet to the west of its current alignment. A new north-south road (Union Road/NE 15th/17th Avenue), when built, may also result in closure of or restricted access on Union Road at NE 179th Street.
- ***I-5/NW Pioneer Street (SR 501) Interchange***: The current width of the NW Pioneer Street overcrossing of I-5 is insufficient to accommodate future left-turn lanes and other capacity improvements that may be needed at this interchange.
- ***I-5/NW 319th Street Interchange***: The current width of the NW 319th Street overcrossing of I-5 is insufficient to accommodate future left-turn lanes and other capacity improvements that may be needed at this interchange.

Environmental Constraints—Some soil types could affect further highway development within the study corridor. Soils most likely to affect engineering practices have moderate to high shrink-swell potential, a seasonal high-water table at or near the surface, and/or high susceptibility to frost action. Steep slopes throughout the study area are located primarily along stream crossings. Potential constraints to additional highway expansion include increased risk of erosion and landslides if proper controls or engineered structures are not installed.

Several small wetlands are located along the existing lanes of I-5/I-205, generally in association with stream and riparian corridors. The filling of these wetlands for future highway development or expansion will likely require the issuance of an Individual Section 404 Permit from the Corps.

The FEMA flood hazard mapping for the study corridor has identified 100-year floodplains along several streams, including Salmon Creek. Potential roadway improvements or expansions will require special review from regulatory agencies if additional support structures for overpasses or stormwater control structures are placed within or adjacent to the floodplains.

Anadromous fish species inhabit nearly every stream or tributary within the study corridor. Several of these species are listed, or are proposed for listing, as federally threatened under the Endangered Species Act. Any proposed highway improvements within the study corridor will likely require a Biological Assessment and a Section 7 consultation with the U.S. Fish and Wildlife Service (USFWS) and consultation with other agencies, including the National Marine Fisheries Service, to document potential impacts to such species.

Several locations have been identified as having blocked passages for fish. Replacement of the existing culverts within the study corridor is unlikely; therefore, enhancement of the existing culverts is the most likely passage mitigation.

Proposed highway and interchange improvements along riparian corridors have potential constraints associated with vegetation removal, impacts to priority wildlife habitats, and impacts to water quality. Removal of riparian vegetation can alter shade along streams, affecting water

temperature and quality. Loss of riparian habitat can adversely affect sensitive wildlife species and migration corridors. Construction within riparian corridors increases the potential for sedimentation into streams, which could result in decreased water quality.

Cultural Resource Constraints—Several archaeological or historic sites have been identified near the study corridor that may constrain transportation improvements. These include a site along NE 83rd Street east of I-205, a site along NE 119th Street near I-205, a site north of NE 179th Street on the east side of I-5, and a site west of I-5 near the NE 219th Street alignment.

Contaminated Soils or Hazardous Material Site Constraints—Several sites in the study corridor are known locations of contaminated soils or hazardous materials that may impact or constrain the ability to make transportation improvements. These include a site on the east side of I-205 adjacent to the Andresen Road/NE 72nd Avenue overcrossing, a site on the east side of I-205 along Rockwell Drive, two sites along NE 20th Avenue (including a paint shop) east of the I-5/I-205 junction, a maintenance facility site adjacent to the northbound on-ramp to I-5 from NE 179th Street, two sites immediately adjacent to the southbound ramps to and from NW Pioneer Street, and a site adjacent to the off-ramp to NW 319th Street along Paradise Park Road.

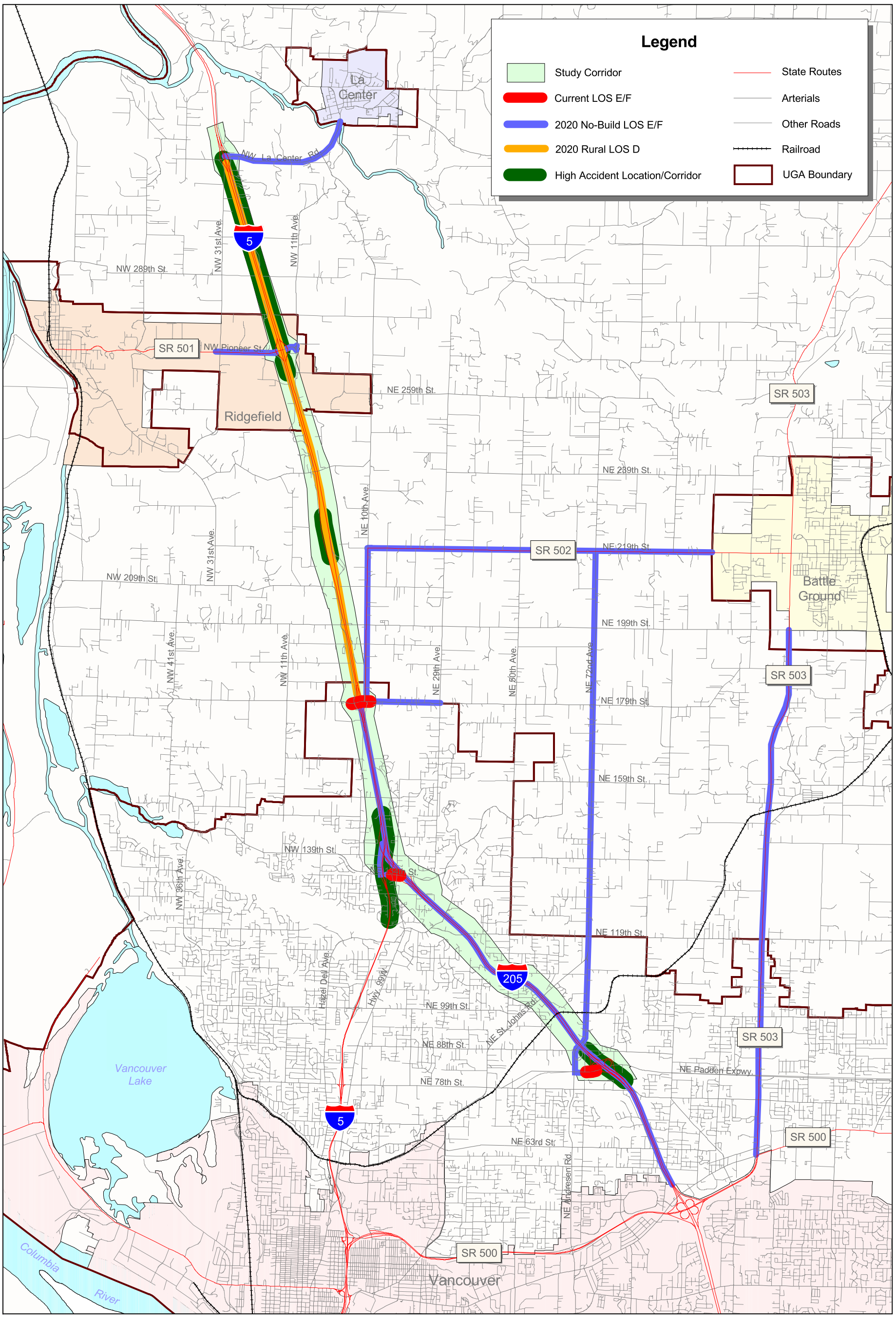


FIGURE 3

I-5/I-205 NORTH CORRIDOR STUDY

Current and Future Deficiencies

N

1 0 1 Mile

Washington State Department of Transportation

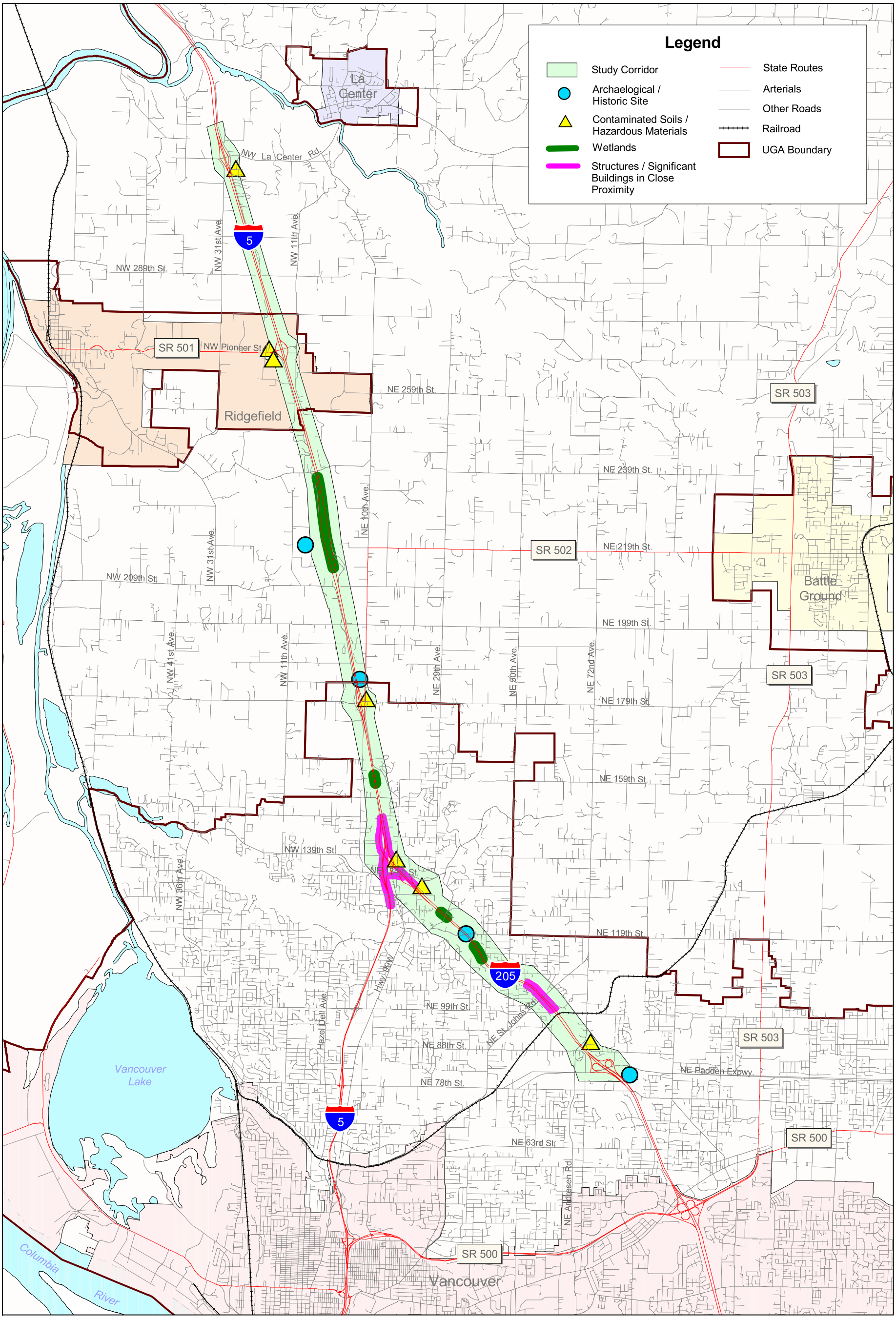


FIGURE 4

I-5/I-205 NORTH CORRIDOR STUDY

Constraints to Future Improvements

N

1 0 1 Mile

Washington State Department of Transportation

3.0 TRANSPORTATION ANALYSIS

Process

Two elements were used to develop the corridor improvement alternatives analyzed in this report:

- Need capital investment levels to maintain service objectives over the 20-year plan, including safety and system management improvements, improvements to existing interchanges and adjacent arterials, additional crossings of I-5, new interchanges at I-5/NE 219th Street and I-205/50th Avenue, and additional mainline capacity
- Interchange and mainline design alternatives, which analyzed the benefits and costs of alternative interchange layouts along with new crossings.

Alternatives were evaluated based on transportation, economic and land use, and environmental impacts.

The objectives of the alternatives analysis were to:

- Select a 20-year level of investment in the corridor and identify project priorities;
- Determine whether the Salmon Creek Park-and-Ride should remain in its current location or be relocated adjacent to the NE 134th Street interchange area;
- Develop a recommendation regarding the merit of advancing the proposed I-5 interchange with SR 502/NE 219th Street into the federally-required Access Point Decision Report process; and
- Identify preferred corridor improvement designs.

Goals

The study advisory committees adopted a set of goals to guide development and evaluation of transportation improvement alternatives. These goals included:

- Developing a 50-year vision for the corridor
- Addressing agency needs and concerns
- Addressing multimodal needs such as transit, bicycle, pedestrian, and freight
- Sustaining the desired function of the Interstate system and maintaining or improving Interstate mobility
- Minimizing impacts to the natural and roadside environment
- Targeting improvement areas to support economic development
- Ensuring consistency with local and regional plans

Transportation Alternatives Analysis

A tiered process was used to develop transportation alternatives. This process consisted of identifying general improvement strategies, then identifying specific improvement projects to be

considered. Improvement projects were then grouped into various level-of-investment alternatives.

The following questions also guided this study and were considered in developing project alternatives:

1. What is the design of the NE 179th Street interchange without and with the NE 219th Street interchange?
2. How is the I-5/I-205/NE 134th Street interchange to be reconfigured or improved?
3. What is the impact of the NE 219th Street interchange on the surrounding system?
4. How does the reconfiguration of the I-5/I-205/NE 134th Street interchange affect the NE 179th Street interchange?
5. What impacts do additional crossings of I-5 have on existing interchanges?

Transportation improvement strategies developed through the tiered process are shown below, along with whether they were moved forward as part of the analysis.

- MOBILITY STRATEGY: Highway widening, auxiliary lanes, ramp improvements, new interchange(s)

All mobility strategies were moved forward as they relate directly to maintaining service levels for the corridor over the duration of the 20-year plan.

- TRANSIT STRATEGY: Light rail/High-Capacity transit, express buses, Park-and-Rides, feeder routes, commuter rail, intercity rail and buses, high-speed rail

The transit mode share in the study area, due to the relatively low density of households and employment being forecast for 2020, is not sufficient to have a significant impact on recommended corridor improvement strategies. For this reason, major transit capital projects such as high-capacity transit, light rail, and other significant transit investment alternatives were not considered. Strategies to increase transit mode share, such as locating Park-and-Rides near the corridor and connecting to the I-5 HOV lanes, were included in the design alternatives.

During the course of this study, a companion study was conducted by the Regional Transportation Council. That study, the I-5 High-Occupancy Vehicle Operational Study, examined HOV implementation on I-5 from NE 134th Street into Portland, Oregon. It recommended implementing HOV lanes southbound during the AM peak period on I-5 between NE 134th Street and the Interstate Bridge. It also recommended not to move forward with a corresponding northbound, PM peak period HOV lane in this segment of I-5 until congestion levels warrant its implementation, which may include replacement of the Interstate Bridge.

At this point, no HOV facility has been identified in the corridor north of NE 134th Street. Also, other studies such as the I-5 Trade Corridor Study[1] and the I-205 Strategic Corridor Study will be examining transit and freight alternatives that will be coordinated with the I-5/I-205 North Study.

Park-and-Rides in the corridor have an impact on interchange-area traffic operations as well as downstream demand. It was determined that the study would examine the locational impacts of Park-and-Rides at the NE 134th Street, NE 179th Street, and NE 219th Street interchanges.

[1] Now called the "I-5 Transportation and Trade Partnership Study"

- ❖ TRANSPORTATION MANAGEMENT (TDM/TSM) STRATEGY: Parking charges, transit passes, Intelligent Transportation System (ITS), bike/pedestrian improvements, safety improvements

It was determined that alternative parking charges and transit incentives are regional issues and outside the scope of this corridor study. ITS, bike/pedestrian, and safety improvement strategies were advanced.

- ❖ DEMAND MANAGEMENT STRATEGY: Congestion pricing, High-Occupancy/Toll lanes (HOT lanes)

It was determined that specific congestion pricing and High Occupancy/Toll (HOT) lane alternatives were more of a regional study and were outside the scope of this corridor study. The I-5/I-205 Corridor Strategy will be developed to accommodate future demand management strategies.

- ❖ FREIGHT MOBILITY STRATEGY: Truck lanes, freight rail

Truck usage in the corridor continues to be an important consideration for this study as well as the I-5 Trade Corridor Study. Freight rail is being examined as part of other studies.

- ❖ NO BUILD STRATEGY: Existing plus committed network

This strategy was carried forward as an alternative.

Figure 5 shows the relationship between the questions and the alternatives identified for further study. These alternatives are discussed in more detail in the following sections.

Transportation Alternatives

Specific transportation network alternatives, which are define as levels of investment in the corridor, use a combination of the transportation strategies identified above. Eight transportation alternatives were initially developed. Bike and pedestrian improvements were included as components of each alternative. A ninth alternative, which added a new interchange on I-205 at NE 50th Avenue onto the No-Build network, was later added.

After a screening analysis of the original alternatives was performed, two alternatives were dropped: an alternative to improve the NE 134th Street/I-5/I-205 interchange only and an alternative to provide only for safety and transportation system management/ Intelligent Transportation System (ITS) improvements. It was determined improvements to the NE 134th Street/I-5/I-205 interchange only would not result in adequate levels of service at other interchanges, including those at NE 179th Street and NW Pioneer Street, and, in addition, would likely exacerbate mainline traffic flow at these two interchanges. The safety and ITS only alternative would also not result in adequate levels of service throughout the system. The NE 134th Street interchange improvements were included in other alternatives, and individual components of the interchange improvements (such as ramp modifications, new crossings, or roadway realignments) were modeled and analyzed separately to assess their respective impacts on the transportation system.

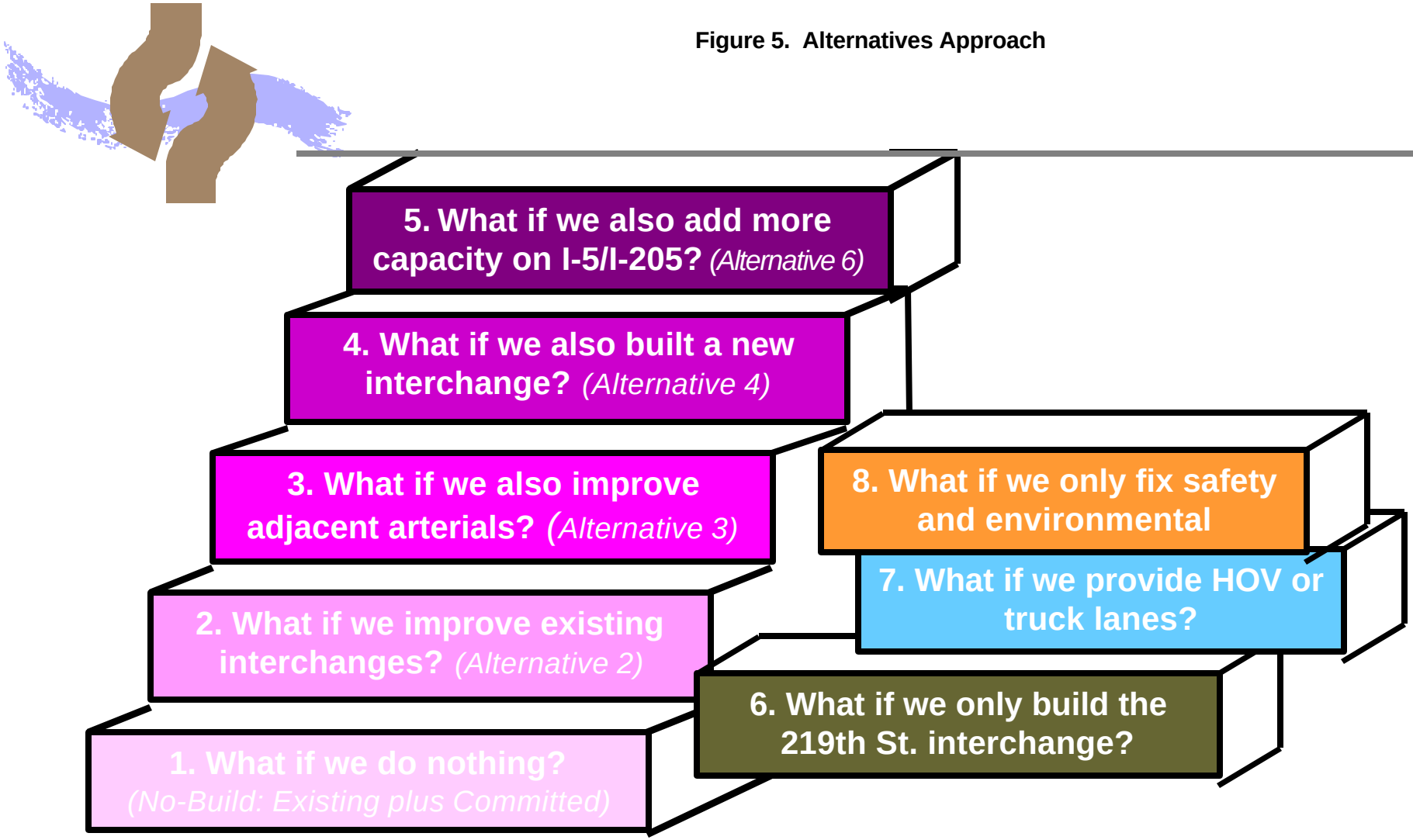
The following six alternatives were recommended for further analysis:

1. No-Build

2. Improve existing interchanges in corridor (this will be analyzed on an interchange-by-interchange basis to examine phasing and assist with the implementation plan)
3. All improvements in Alternative #2 plus improve adjacent and intersecting arterials
4. All improvements in Alternative #3 plus construct NE 219th Street interchange
5. No-Build plus construct NE 219th Street interchange
6. All improvements in Alternative #4 plus widening of I-5 and I-205.

A summary of the alternatives follows. These alternatives are depicted in Figures 6 through 11.

Figure 5. Alternatives Approach



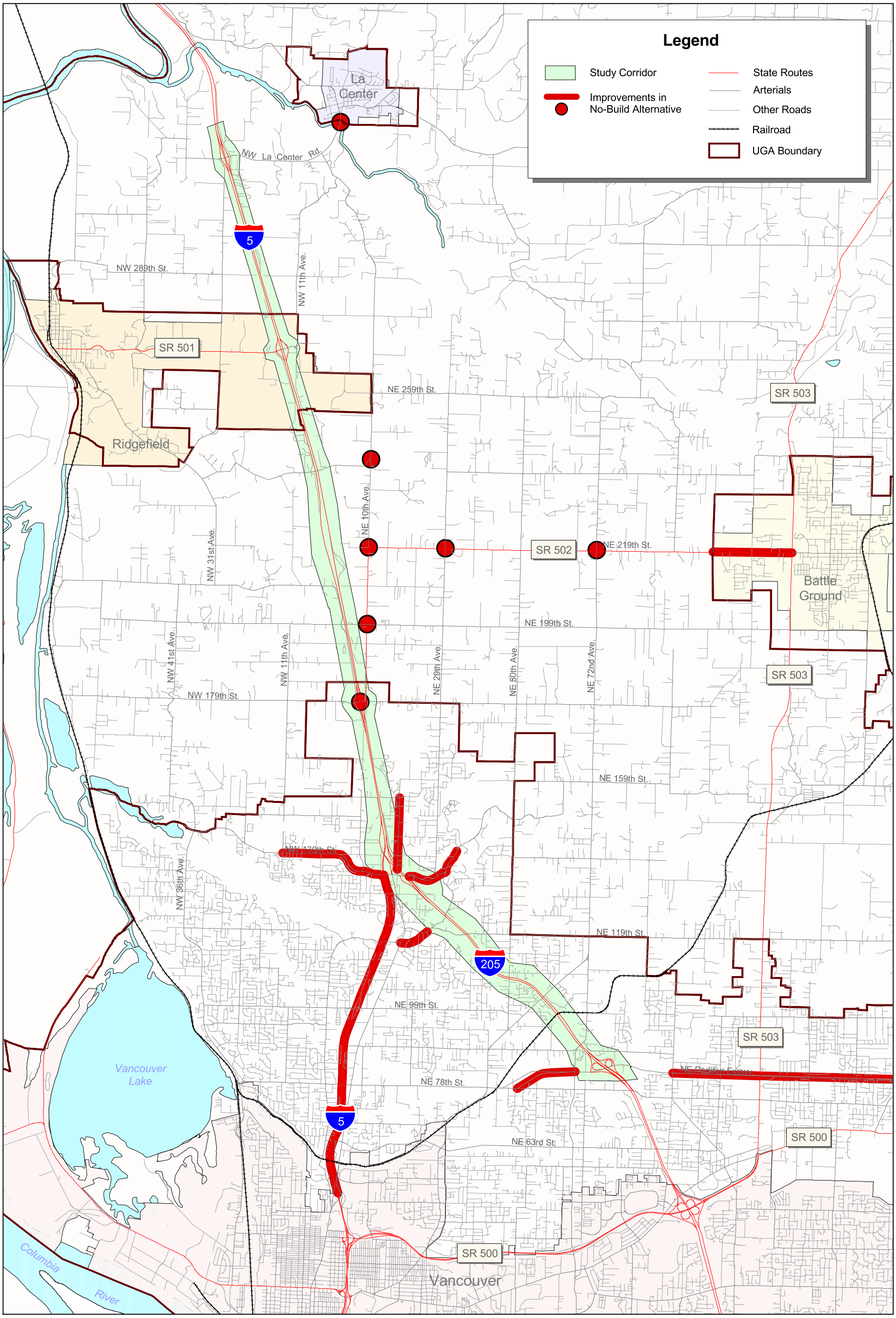


FIGURE 6

I-5/I-205 NORTH CORRIDOR STUDY

Alternative 1: No-Build

N

1 0 1 Mile

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Figure 7

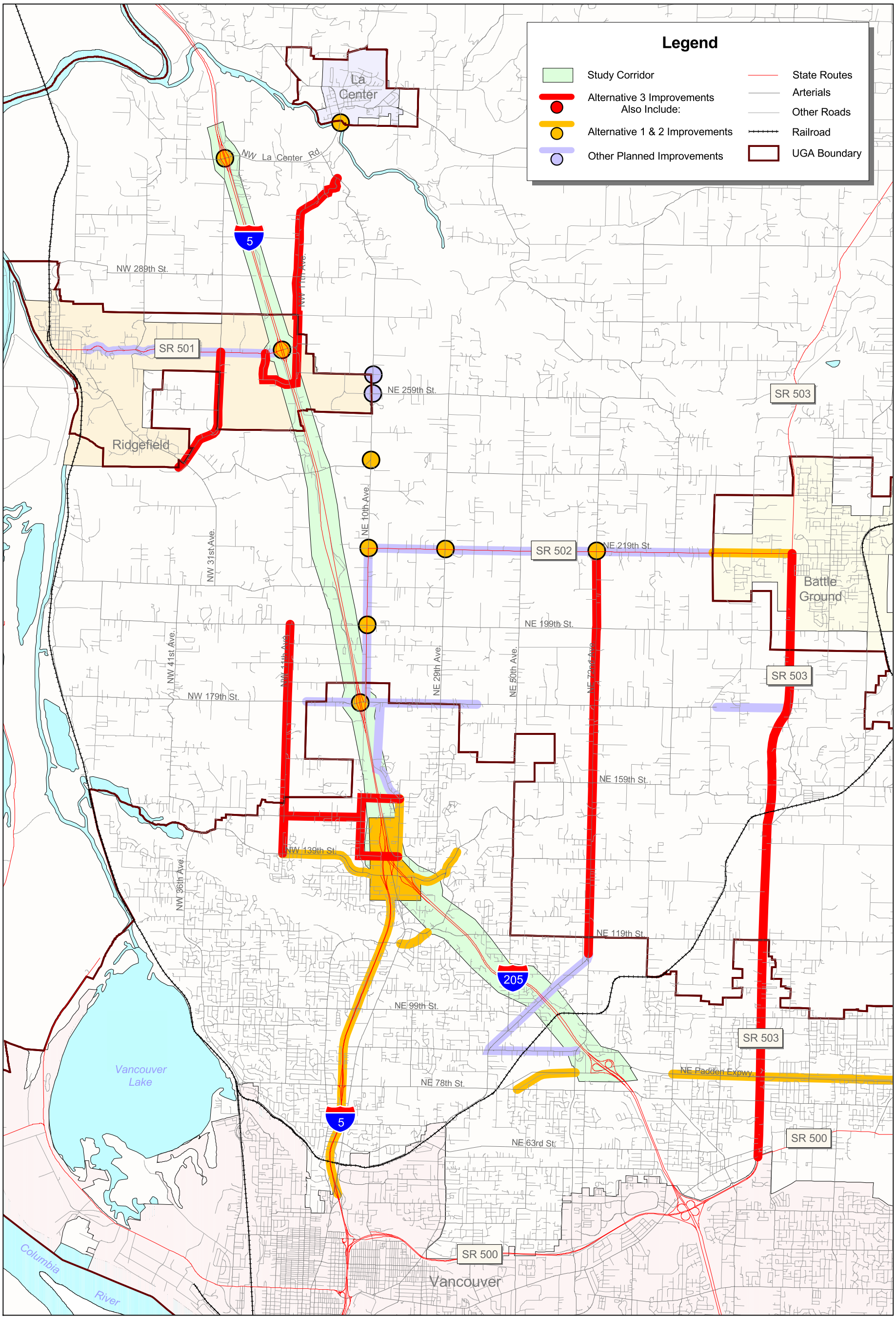


FIGURE 8

I-5/I-205 NORTH CORRIDOR STUDY

Alternative 3:
Improve Interchanges and Existing Roads

N

1 0 1 Mile

Washington State Department of Transportation

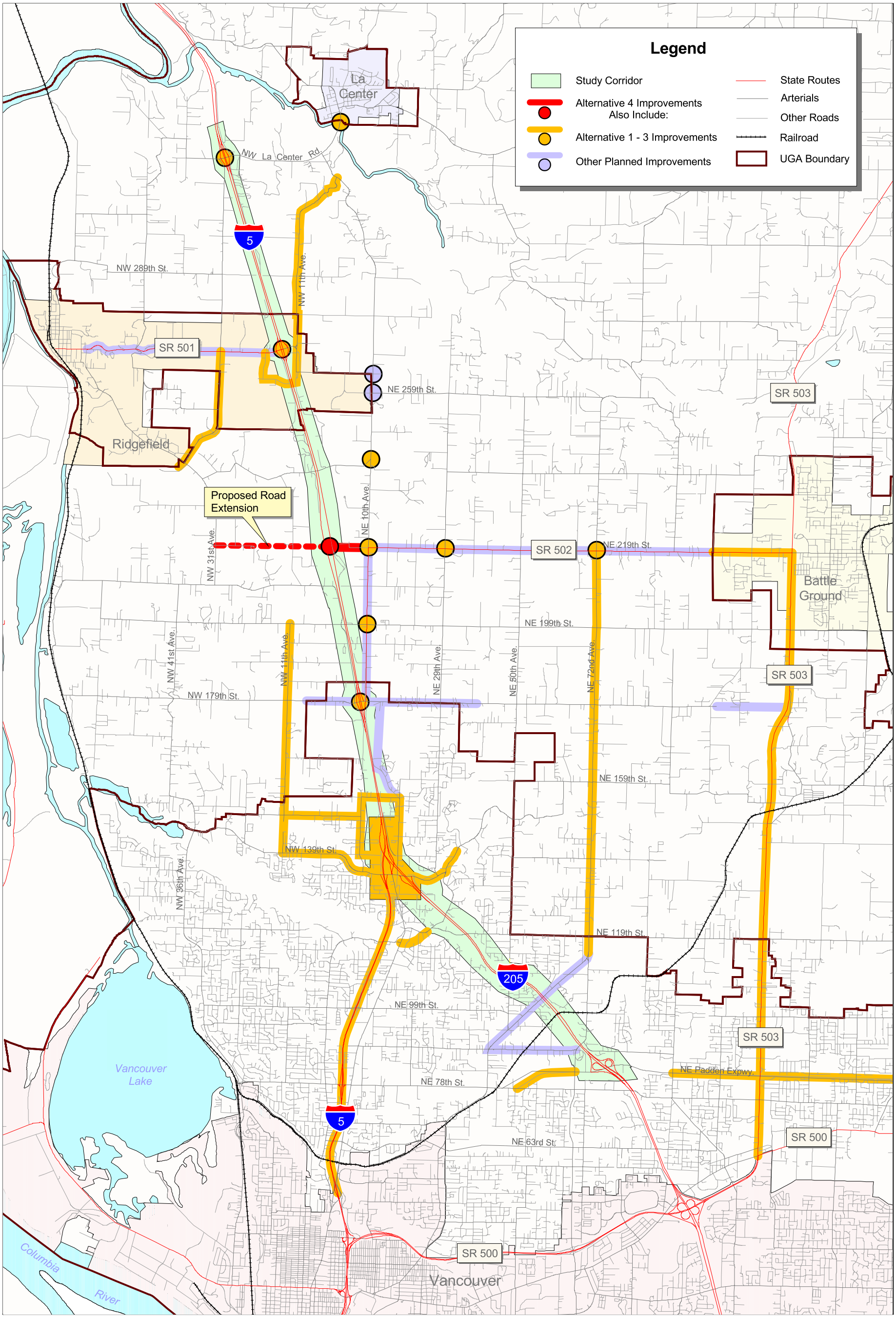


FIGURE 9

I-5/I-205 NORTH CORRIDOR STUDY

Alternative 4:
New 219th St. Interchange and Other Improvements

Washington State Department of Transportation

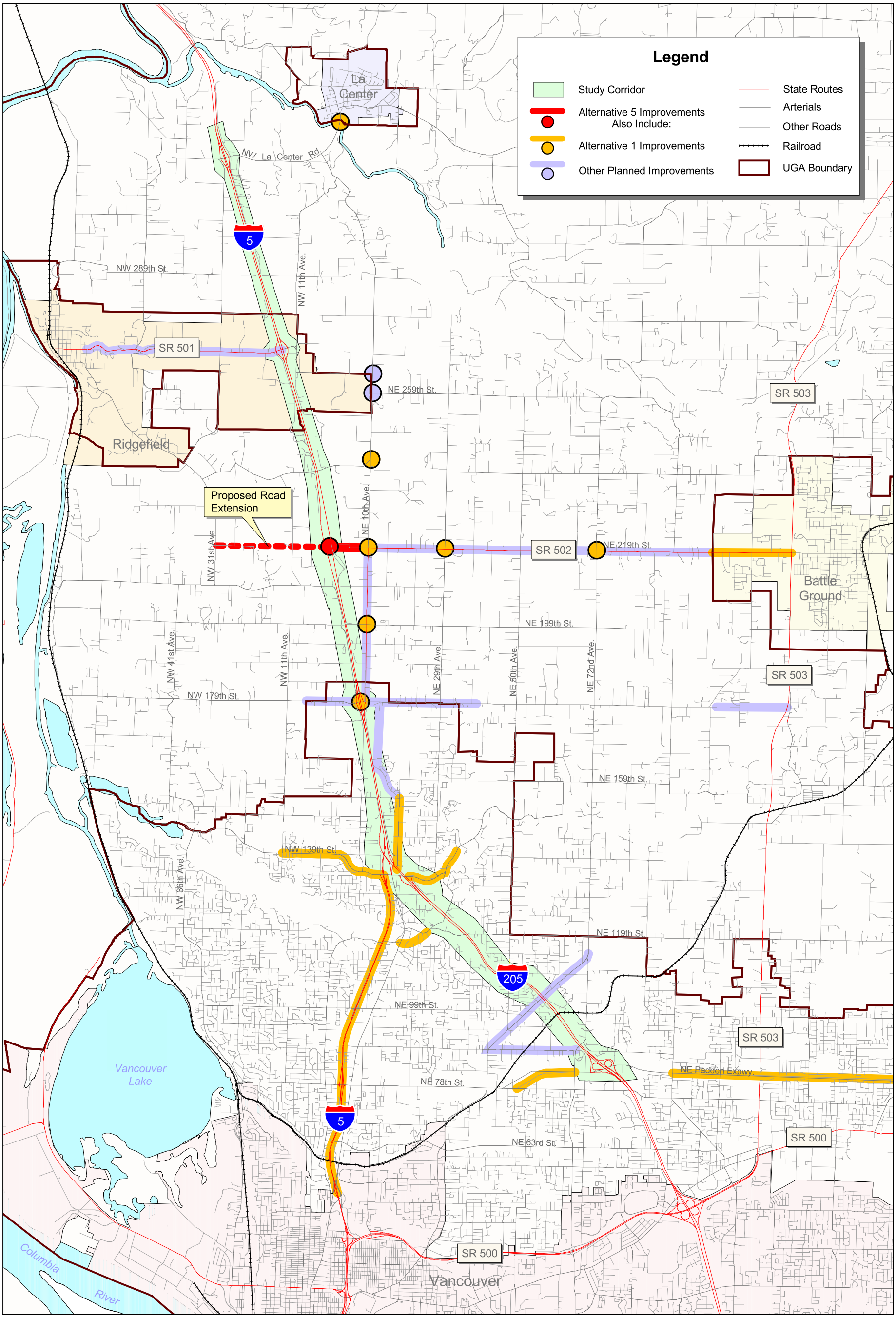


FIGURE 10

I-5/I-205 NORTH CORRIDOR STUDY

Alternative 5:
New 219th St. Interchange
(Stand Alone Alternative)

N

1 0 1 Mile

Washington State Department of Transportation

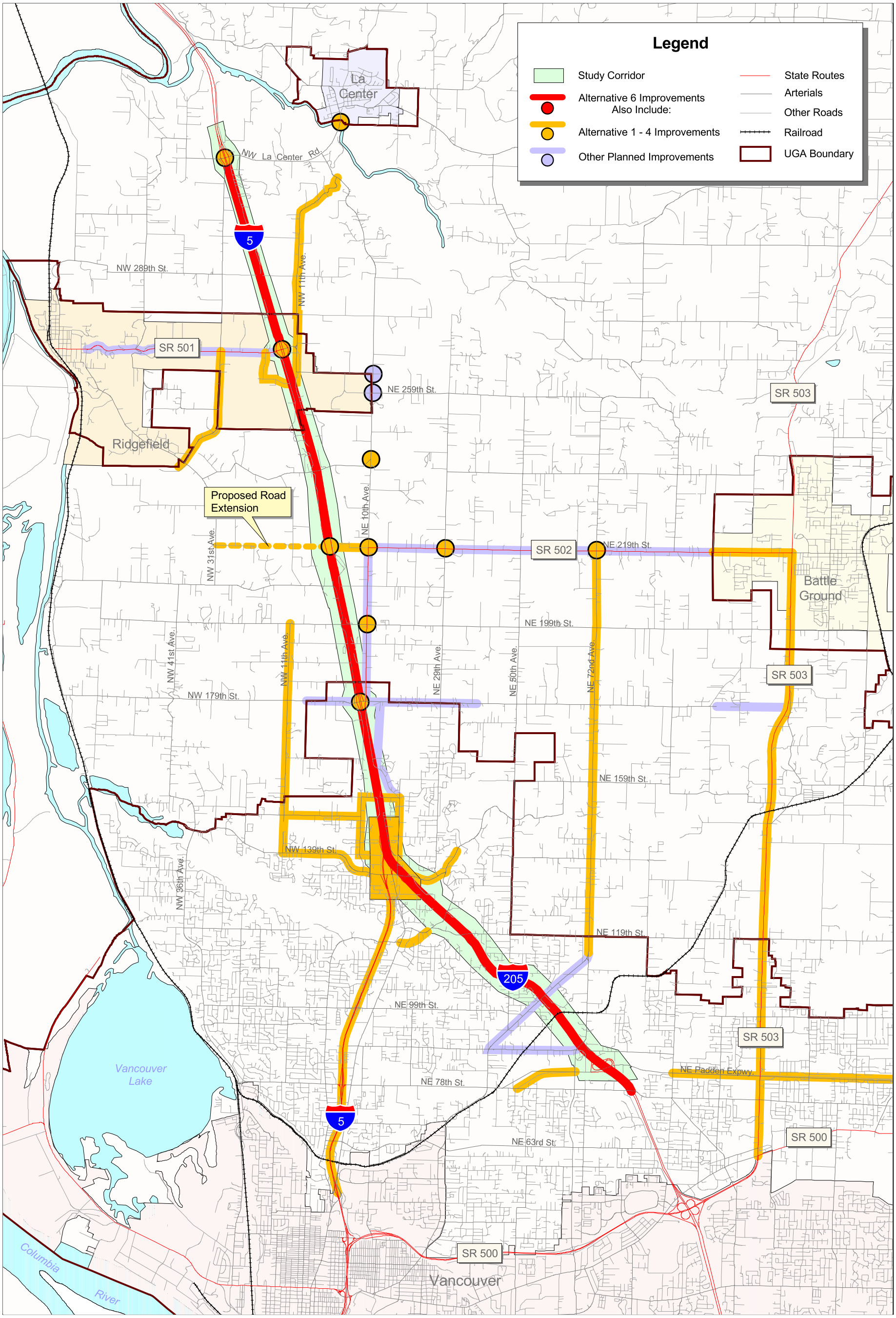


FIGURE 11

I-5/I-205 NORTH CORRIDOR STUDY

Alternative 6:
Interchange Plus
Mainline Improvements

N

1 0 1 Mile

Washington State Department of Transportation

Alternative 1: No-Build

This alternative consists of the existing transportation system and adds capacity improvements that are already funded and scheduled to be completed within the next 6 years.

The No-Build model run is on an "existing plus committed" network. For the No-Build model run, the existing (1998) transportation network was enhanced by including the following improvements:

- I-5 widening to six lanes, from Main Street to NE 134th Street.
- Interchange improvements (recently completed) at the I-5/NE 179th Street interchange, including widening of 179th Street to four lanes through the interchange, ramp widening, and signalizing the southbound ramps.
- Completion of the Padden Parkway.
- Minor intersection "safety" improvements along the SR 502 corridor from I-5 to Battle Ground.
- NE 10th Avenue improvements from NE 219th Street to Carty Road.
- Widening of SR 502/Main Street in Battle Ground to five lanes.
- Metropolitan Transportation Plan improvements outside of the study/modeling area.

No additional corridor or other system improvements are included. The horizon year is "Interim 2020." Because this alternative serves as the baseline for comparison to all of the "build" alternatives, this alternative is to be retained.

Alternative 2: Improve all Existing Interchanges in the Corridor

This alternative provides for improvements to all existing interchanges in the corridor: I-205 at NE 83rd Street/Padden Parkway, I-5/I-205/NE 134th Street, I-5 at NE 179th Street/SR 502, I-5 at NW Pioneer Street/SR 501, and I-5 at NW 319th Street/NW La Center Road. It addresses how the NE 179th Street interchange could be designed without the NE 219th Street interchange, and how the NE 134th Street interchange improvements could affect NE 179th Street.

This alternative also includes transportation system improvements identified in the Metropolitan Transportation Plan that are within the study area but outside of the study corridor, as well as improvements to adjacent arterials and crossings of the Interstate (such as NE 154th Street) identified in the Salmon Creek/Fairgrounds Regional Road Plan.

Improvements identified in the Salmon Creek/Fairgrounds Regional Road Plan, additional interchange concepts developed as a part of this study, reconfiguration of the I-5/I-205 junction, a NE 139th Street overcrossing of I-5, and the NE 154th Street undercrossing contained in the Salmon Creek/Fairgrounds Plan are also evaluated under this alternative, as are design considerations for the ramps involved. Modeling and "post-processing" (detailed adjustments to modeled output) individually tested specific improvements (such as ramp realignments, new ramps or crossings, roadway realignments) to allow each element impact on the system to be evaluated.

Alternative 3: Improve All Existing Interchanges and Adjacent Arterials

Alternative 3 includes all of those improvements identified in Alternative 2, plus improvements to NE 72nd Avenue, SR 503 between SR 500 and Battle Ground, NW 11th Avenue between NW 139th Street and NW 199th Street, NE 10th Avenue north of Carty Road, and NW La Center

Road, as well as extension of NE 179th Street to SR 503. A new undercrossing of I-5 at NW 259th Street connecting Ridgefield Junction with NW 11th Avenue is also included.

This alternative provides for an analysis of "all reasonable alternatives to a new interchange" as part of the alternatives analysis and new interchange access report for the NE 219th Street interchange.

Alternative 4: Build a New NE 219th Street Interchange and Improve Existing Interchanges and Arterials

This alternative includes all improvements in Alternative 3 plus construction of a new interchange on I-5 between NE 179th Street and NW Pioneer Street. Two interchange alternatives were analyzed: full diamond at NE 219th Street vicinity, and split diamond between NE 199th and NE 219th Streets. A frontage road would extend westward from the interchange, parallel I-5 adjacent to the right-of-way, and connect to NW 209th Street and NE 199th Street to provide access to the west. This enables an assessment of the design of the NE 179th Street interchange with the NE 219th Street interchange in place.

Alternative 5: No-Build Alternative plus New NE 219th Street Interchange

This alternative includes the No-Build alternative plus construction of a new interchange on I-5 between NE 179th Street and NW Pioneer Street. Two interchange alternatives were analyzed: full diamond at NE 219th Street vicinity, and split diamond between NE 199th and NE 219th Streets. A frontage road would extend westward from the interchange, parallel I-5 adjacent to the right-of-way, and connect to NW 209th Street and NE 199th Street to provide access to the west. This would analyze the impacts of the NE 219th Street interchange on the NE 179th and NW Pioneer Street interchanges as well as impacts on the surrounding system.

Alternative 6: All Improvements in Alternative 4 plus Widening of I-5 and I-205

This alternative includes all improvements identified in Alternative 4 plus widening I-205 to three lanes in each direction between NE 83rd Street and I-5, widening I-5 to four lanes each direction between I-205 and NW 319th Street, and widening of I-5 to three lanes in each direction between NE 134th Street and I-205. Analysis would also address how far north I-5 widening would be needed to maintain adequate levels of service, and an analysis of proposed lane designation (general purpose, truck, HOV, etc.).

It is reasonable to assume that improving the mainlines of I-5 and I-205 may encourage more traffic to use those facilities, and in turn add traffic to the ramp improvements already included in the above alternatives. A "feedback loop" analysis was made to assess and determine what, if any, modifications to interchange improvements already identified may be needed to accommodate the changes in travel patterns resulting from increased mainline capacity.

Findings

The following key findings are based on the 2020 analysis of the transportation alternatives. Findings are based on projected 2020 peak-hour conditions. Tables 1 and 2 later in this Section summarize mainline level-of-service and travel times between key points.

Alternative 1: No-Build

The No-Build alternative results in higher congestion, with the NE 134th Street, NE 179th Street, and SR 501/NW Pioneer Street off ramps projected to regularly have queues extending onto the mainlines of I-5 and I-205. This will likely exacerbate current high-accident conditions at those interchanges. Without mitigation air quality and noise levels will worsen, especially in interchange areas. Several listed streams with currently substandard culverts/crossings will not be mitigated. Travel times along major arterial corridors intersecting I-5 will greatly increase; for example, the travel time on the NE 134th Street corridor between I-205 and Fred Meyer will increase from the current 4 to 5 minutes to 18 to 20 minutes.

Several interchanges and corridors will operate below standards (LOS E/F), including I-5 between NE 134th and NE 179th Street; SR 502 between I-5 and Battle Ground; the I-5/I-205 interchanges at NE 134th Street, NE 179th Street, SR 501 / NW Pioneer Street, and NW La Center Road; SR 501 between I-5 and Ridgefield; and NW La Center Road between I-5 and La Center.

Alternative 2: Improve all Existing Interchanges in the Corridor

Improving the ramps will lessen the probability that backups will regularly extend onto the mainlines of I-5 and I-205. Corresponding accident reductions are expected as ramp backups are reduced. However, the traffic simulations found that in the no-build alternative, the ramp queues tended to "meter" traffic onto the intersecting arterials, such as NE 134th Street, limiting the congestion on the arterial. If the ramps are widened, there is a tendency to "flush the queue", which causes a higher level of delay on the intersecting arterial if no additional improvements are made to the arterial itself.

Under this alternative, there will be slight increases in traffic volumes on I-5 and I-205, and the NE 134th Street and NE 179th Street/SR 502 corridors will still operate at LOS E/F. Decisions regarding the locations of Park-and-Rides at NE 134th Street and at NE 179th Street will affect congestion levels at those interchanges. Major changes are still needed at the NE 179th Street interchange to alleviate congestion at that location. Design options that increase the "footprint" of the NE 179th Street interchange will likely result in hazardous materials cleanup at the interchange, where a gas station is currently operating. Interchange improvements may affect Ridgefield's economic development to a higher extent than La Center's. An economic panel identified interchange improvements at the SR 501/NW Pioneer Street interchange as having an impact on the development of surrounding industrial land.

Alternative 3: Improve All Existing Interchanges and Adjacent Arterials

Even though improvements under this alternative are made to I-5 and I-205 interchanges and arterials adjacent to those corridors, both SR 502 and SR 503 will still operate at Level-of-Service (LOS) E/F, which is considered failing under adopted WSDOT service standards. Although congestion levels overall decrease substantially in the study area, there is an increase in vehicle miles traveled as trips are attracted to the Interstates, because these tend to be more out-of-direction trips (although at a higher speed) compared to using local arterials. Noise levels on adjacent arterials will likely increase, resulting in potential mitigation needs.

The NE 134th Street corridor will operate at approximately LOS D (4- to 5-minute corridor travel time), but only if new 139th Street and 154th Street crossings of I-5 are built between NE 10th and NE 20th Avenues. The NE 179th Street interchange and SR 502 corridor will still operate at LOS

E/F; neither a new 139th Street nor a new 154th Street crossing reduces congestion along NE 179th Street between NW 11th Avenue and NE 29th Avenue.

This alternative includes a new crossing of I-5 south of the SR 501/NW Pioneer Street interchange (at approximately NW 259th Street). The new NW 259th Street crossing slightly reduces congestion at the NW Pioneer Street / SR 501 interchange (the overpass) but has no impact on ramp volumes. Construction of a new NW 259th Street crossing may defer widening of SR 501 but will not eliminate the need altogether. The Economic/Land use panel concluded that arterial improvements would play an important role in Ridgefield's economic development.

Alternative 4: Build a New NE 219th Street Interchange and Improve Existing Interchanges and Arterials

Adding a new interchange at NE 219th Street (SR 502 extension) to Alternative 4 reduces overall congestion levels in the study area; however, it has no impact on SR 503. There would be a significant reduction in congestion on SR 502/NE 10th Avenue between NE 179th Street and NE 219th Street, with corresponding traffic increases on I-5 between NE 179th Street and NE 219th Street.

SR 502 between I-5 and NE 219th Street would no longer require five lanes to accommodate demand. The NE 179th Street interchange would require significant improvements but will not require high-level improvements such as flyovers (ramps grade-separated from NE 179th Street).

Minor impacts to the SR 501/NW Pioneer Street interchange would not be sufficient to change the interchange improvement needs.

A westerly extension of NE 219th Street to Hillhurst Road was considered and analyzed as part of this alternative. It is currently inconsistent with the Comprehensive Plan; traffic westbound from interchange could be accommodated on existing roads with few capacity improvements necessary.

While the new interchange is not incorporated into Clark County's Comprehensive Plan, it is shown on the Arterial Atlas, a component of the Comprehensive Plan. However, the County currently has no policies regarding adding a new interchange to the Comprehensive Plan.

The cost to build a new interchange would be offset by reduced costs at the NE 179th Street interchange and as a result of not having to widen SR 502 between I-5/NE 179th Street and NE 219th Street or having to build significant interchange improvements at NE 179th Street, such as directional on- and off- "flyover" ramps. A new interchange would need to mitigate impacts to stream crossings and wetlands along Gee Creek.

The Economic/land use panel concluded that there is some potential for commercial development at the new interchange, but little potential for industrial development. The panel was unclear as to the effect of the interchange on downtown Battle Ground.

Alternative 5: No-Build Alternative plus New NE 219th Street Interchange

If the proposed NE 219th Street interchange is added to the No-Build network, SR 502 would need to be widened from I-5 to Battle Ground to support the interchange. Without widening SR 502, the NE 179th Street interchange would continue to operate at LOS E/F and would need extensive improvements such as flyovers. This alternative does not reduce congestion at other interchanges.

Alternative 6: All Improvements in Alternative 4 plus Widening of I-5 and I-205

Adding mainline capacity to Alternative 4 mitigates most of the LOS E/F deficiencies identified on the Interstate system within the Study area. There would be a slight increase in traffic on the Interstates compared to other "Build" alternatives, and a slight reduction in volume on SR 503, although it would be insufficient to fully mitigate LOS E/F conditions from Fourth Plain to Battle Ground.

This is the only alternative that includes seismic retrofit of all bridges in the corridor. Environmental impacts would be similar to other "Build" alternatives, and costs could be higher because additional noise and stream crossing mitigation may be required.

I-205/50th Avenue Interchange

A separate analysis was conducted for a proposed I-205 interchange with NE 50th Avenue. The interchange was analyzed by adding it to the 2020 No-Build network and running the regional transportation model. The resultant VMT increased in the study area by 0.1% over the No-Build scenario, and the resultant VHT increased by 0.3% over the No-Build scenario. Analysis of the interchange indicates that the majority of trips that would use it have destinations within one mile of the interchange. A high percentage of the trips using the interchange would also be short trips (less than 8 miles). This indicates that the interchange would primarily serve local trips.

To gain Federal Highway Administration approval, it must be demonstrated that a new interchange would serve regional and Interstate trips, that all other options to the new interchange have been exhausted, and that the interchange would not affect traffic operations on the Interstate Highway system. This interchange does not serve regional or Interstate trips; the trips are primarily local in nature. In addition, other arterial improvements would likely provide the capacity needed to accommodate 20-year travel demand in the area.

For these reasons, the study recommends that there be no further consideration of a new interchange on I-205 at NE 50th Avenue as part of the 20-year Corridor Strategy. The idea of a new interchange should be revisited if future Comprehensive Plan updates indicate that there would be more regional use of this interchange.

Table 1 summarizes level-of-service for the I-5 and I-205 mainlines by alternative. Table 2 lists year 2020 PM peak hour travel times between key points based on each alternative.

Table 1. Mainline Level-of-Service by Alternative

	Level-of-Service by Alternative					
Link	**1: No-Build**	**2: Improve Interchanges**	**3: Alt. #2 and Improve Adjacent Arterials**	**4: Alt. #3 and Build 219th Interchange**	**5: No-Build with 219th Interchange**	**6: Alt. #4 with Mainline Widening**
I-205						
South of NE 83rd Street	LOS F	LOS F	LOS F	LOS F	LOS F	LOS D
NE 83rd to NE134th Streets	E	E	E	E	E	D
NE 134th Street to I-5 Junction	F	F	E	E	F	C
I-5						
NE 134th Street to I-205 Junction	LOS E	E	E	E	E	D

I-205 Junction to 179th Street	F	F	F	F	F	D
NE 179th to NE 219th Street	F	F	F	F	F	D
NE 219th St. to SR 501/NW Pioneer	E	E	D	D	E	D

Table 2. Travel Times Between Key Points

	Travel Time (Minutes) by Alternative					
Trip Origin and Destination	**1: No-Build**	**2: Improve Interchanges**	**3: Alt. #2 and Improve Adjacent Arterials**	**4: Alt. #3 and Build 219th Interchange**	**5: No-Build with 219th Interchange**	**6: Alt. #4 with Mainline Widening**
I-205						
SR 500 to 134th Street (WSU Campus east of I-205)	12-14	9-11	9-11	9-11	12-14	8-10
SR 500 to Fairgrounds	15-17	12-14	11-13	11-13	14-16	9-11
I-5						
134th Street: Fred Meyer to WSU Campus	18-20	11-13	5-8	5-8	18-20	5-8
99th Street to Fairgrounds	9-11	7-9	6-8	6-8	8-10	5-7
99th Street to Battle Ground	24-26	17-19	17-19	16-18	26-28	15-17
134th Street to La Center	14-17	14-17	14-17	14-17	14-17	13-15

Impact of Alternatives on High Accident Corridors and Locations

Another aspect of evaluating the alternatives is to examine their potential impact on the identified High Accident Corridors and Locations (HAC's and HAL's). Table 3 below summarizes the projected impacts on HAC's and HAL's by alternative.

Table 3. Impacts of Alternatives on High Accident Corridors and Locations*

	Safety Improvement by Alternative					
Location	**1: No-Build**	**2: Improve Interchanges**	**3: Alt. #2 and Improve Adjacent Arterials**	**4: Alt. #3 and Build 219th Interchange**	**5: No-Build with 219th Interchange**	**6: Alt. #4 with Mainline Widening**
I-205						
At NE 83rd Street Interchange	No effect	Should reduce angle accidents	Should reduce angle accidents	Should reduce angle accidents	No effect	Should reduce angle and run-off-road accidents

	Safety Improvement by Alternative					
Location	**1: No-Build**	**2: Improve Interchanges**	**3: Alt. #2 and Improve Adjacent Arterials**	**4: Alt. #3 and Build 219th Interchange**	**5: No-Build with 219th Interchange**	**6: Alt. #4 with Mainline Widening**
NE 83rd Street to I-5 Junction (Risk Reduction)	No effect	Minimizes potential for rear-end accidents at 134th Street off-ramp	Minimizes potential for rear-end accidents at 134th Street off-ramp	Minimizes potential for rear-end accidents at 134th Street off-ramp	No effect	Minimizes rear-end accident potential at 134th; minimizes run-off-road accident potential along mainline
I-5						
At 134th Street northbound off ramp	No effect	Reduces rear-end accidents	Reduces rear-end accidents	Reduces rear-end accidents	No effect	Reduces rear-end accidents
134th to 179th Street Junction	No effect	With diagrammatic signing, may reduce sideswipes due to weaving	With diagrammatic signing, may reduce sideswipes due to weaving	May reduce sideswipe accidents due to weaving between 179th Street and I-205 junction[2]	May reduce sideswipe accidents due to weaving between 179th Street and I-205 junction	May reduce sideswipe accidents due to weaving between 179th Street and I-205 junction
179th Street to SR 501	No effect	Should reduce rear-end accidents at 179th and SR 501 off ramps, and angle accidents due to merging at the 179th and SR 501 on-ramps	Should reduce rear-end accidents at 179th and SR 501 off ramps, and angle accidents due to merging at the 179th and SR 501 on-ramps	Should reduce rear-end accidents at 179th and SR 501 off ramps, and angle accidents due to merging at the 179th and SR 501 on-ramps; should also reduce accidents along SR 502 HAC between	May reduce rear-end accidents at 179th Street interchange; should also reduce accidents along SR 502 HAC between 179th and 219th Streets	Should reduce rear-end accidents at 179th and SR 501 off ramps, and angle accidents due to merging at the 179th and SR 501 on-ramps; should also reduce accidents along SR 502 HAC between 179th and 219th Streets

[2] Modeling for the Year 2020 shows that a majority of traffic will continue to travel on I-5 south to and from Portland and downtown Vancouver, which leads to the conclusion that weaving issues will be exacerbated by 2020 with increased traffic from 179th Street (which needs to weave across two lanes to continue south of I-5) and on I-5 between 179th Street and the I-205 junction, which is projected to exacerbate the current High Accident Location and Corridor. Modeling has shown that a new 219th Street interchange is projected to capture at least 50 percent of the traffic currently using the 179th Street interchange, which would put much of that traffic in the I-5 mainline lanes and should reduce the 179th Street-to-I-205 weaving, which in turn should reduce the accidents attributable to that weaving.

	Safety Improvement by Alternative					
Location	**1: No-Build**	**2: Improve Interchanges**	**3: Alt. #2 and Improve Adjacent Arterials**	**4: Alt. #3 and Build 219th Interchange**	**5: No-Build with 219th Interchange**	**6: Alt. #4 with Mainline Widening**
				179th and 219th Streets		
SR 501 to La Center Road	No effect	No effect	No effect	No effect	No effect	May alleviate run-off-road and striking-object accidents

*The table also lists Risk Reduction efforts, which are intended to reduce accident potential along non-high accident corridors.

Transit Facilities

To ensure consistency with statewide and regional planning goals, this study examined the impact of transit on the design alternatives and, conversely, how each of the design alternatives could accommodate transit. As discussed previously, Clark County is studying ways to incorporate transit, which may eventually include high-occupancy vehicles or light rail, or both, into its long-term planning.

The Regional Park-and-Ride Study was conducted by the Regional Transportation Council (RTC) in 1995-1996. The study committee, which consisted of RTC, WSDOT, Clark County, C-TRAN, and City of Vancouver representatives, identified a 20-year demand for almost 3,000 additional park-and-ride automobile parking spaces in the I-5 corridor. The planning horizon for that study was 2015.

During that analysis, C-TRAN, RTC, and the consultant team conducted a series of peak hour parking demand and trip generation observations at the Salmon Creek and Evergreen Transit Centers. This information was used to establish peak hour trip-generation rates for the park-and-ride analysis, including number of vehicles parking (entering, exiting) as well as kiss-and-ride demand. Model run results were adjusted to include park-and-ride trips.

Using this information and the increased growth projections for 2020, a series of discussions and workshops were held with the study advisory committees to discuss park-and-ride needs and locations. Project direction resulting from those meetings is summarized below:

- The NE 99th Street Park-and-Ride currently being planned by C-TRAN is to be an addition to the Salmon Creek Park-and-Ride capacity, not a replacement.
- The Study should assume 800-space park-and-rides at Salmon Creek, NE 179th Street, and NE 219th Street.
- Peak hour volumes were adjusted to reflect the 800-space park-and-rides — volumes were increased on arterials accessing the park-and-rides and decreased on ramps and the mainlines to reflect shifting of travel demand onto transit.
- The I-5 High-Occupancy Vehicle (HOV) Operational Study results for the I-5 corridor were incorporated into the design and analysis of alternatives. This study assumes that there will be HOV lanes on I-5 (left lane, continuous access) from NE 134th Street southward toward the Columbia River (southbound only).
- During design, the possibility of terminating the HOV lane at the proposed new 139th Street crossing of I-5 as HOV-only on- and off-ramps will be considered. This would save transit and HOV users as much as 5 minutes in each of the a.m. and p.m. peak periods because they would not need to use the NE 134th Street interchange.
- Designs should not preclude extending the I-5 HOV lane north of NE 134th Street.
- HOV on I-205 will not be designed as part of this study; however, the consultant team concluded that widening could occur into the median of I-205 with no significant modifications to bridge piers in the corridor.

Salmon Creek Park-and-Ride

A major issue regarding transit and high-occupancy vehicles (HOV) is whether the Salmon Creek Park-and-Ride should be relocated from its current site, which lies away from the interchange area, to a point adjacent to the interchange. The design of the future interchange

and of the transit facility itself will both be affected by the site chosen for this park-and-ride. In addition to relocation of the Salmon Creek Park-and-Ride, Future park-and-rides at the NE 179th Street interchange and the proposed NE 219th Street interchange were also studied. A separate workshop was held to address the issues surrounding relocation of the Salmon Creek Park-and-Ride. Issues and concerns identified during that workshop follow.

Transit Access Issues

- Transit access to and from the proposed park-and-ride needs to be quick and efficient. For this reason, any access from the north and back to the north should be designed to accommodate possible "leap frog" service (transit routes running along I-5 which serve every other park-and-ride) to future park-and-ride facilities to the north at NE 179th Street and beyond.
- Designs should minimize the number of intersections to traverse, number of unaided left turns, and distance from I-5 for both transit operations and patrons.
- The possible site for relocation of the Salmon Creek Park-and-Ride that lies west of I-5 could eventually serve as an interim terminus for HOV or play a part in a potential LRT network. Consequently, the site needs to allow for major transit center, local route and circulator route access, as well as a kiss-and-ride and other transit facilities and should not preclude future light rail.
- If full HOV access is provided north- and southbound at 139th Street, an HOV ramp touching back down to the north could be used for transit-only access to I-5.
- Without major modification, transit access to the existing site is too circuitous. Transit vehicles would continue to have to move through the NE 134th Street corridor, with the additional time negating much of the advantage that using transit could provide.

Patron Access Issues

- Patron access from the east, north and west needs to be efficient and simple. Access to and from needs to be provided with minimum effort. During the workshop, a Texas U-Turn at NE 134th Street overpass was recommended for further study to allow quick and efficient return to northbound I-5. This possibility was later dropped due to high construction costs and operational issues.
- Improving 139th Street will provide for a secondary route to the NE 134th Street corridor, which will reduce the bus travel time to and from I-5 for park-and-ride patrons and carpools. Carpools and transit would be able to avoid the NE 134th Street corridor congestion.
- Some type of access off NE 16th Avenue to the park-and-ride should be provided, if possible.
- Access from 136th Street would preserve full access to existing land uses and provide multiple access to potential park-and-ride.
- Patron access to existing site is circuitous and inefficient. This will actually reduce incentive to use facility.

Alternative Site Observations

Sites to both the east and west of I-5 are being considered for relocation of the existing Salmon Creek Park-and-Ride. During site visits made by the study consultant, the following observations were made.

- The site east of I-205 and north of NE 134th Street has a stream running through or adjacent to it. This could result in higher development costs associated with addressing increased impervious surface issues.
- The western site is more conducive to potential joint development, and there is room for 1,000+ vehicles on-site. This site seems to be level and clear; however, known and potential low-class wetlands on the site may present some permitting issues. No obvious drainage issues were observed.
- The western site could be expanded easily and could be used as interim terminus for any HOV or LRT system.
- The western site is very visible from the freeway and could be easily signed.
- Access to the park-and-ride at the western site could be constructed prior to interchange construction. Consequently, a park-and-ride could continue to operate in the vicinity of the I-5/I-205 interchange and could be used as a possible mitigation technique throughout the implementation of the overall interchange development plan.
- It may not be possible to continue operation at the existing park-and-ride during full construction of the interchange improvements. This is a fatal flaw from a transit and park-and-ride perspective.

Salmon Creek Park-and-Ride Recommendation

The western site offers a number of advantages over both the existing and the eastern sites:

- Simplicity of access for patrons and transit
- Efficiency of transit maneuvers
- Visibility
- Size and orientation to roadway network
- Viability during construction phase
- Topography and drainage

Given these advantages, the study recommends that:

- The western site be pursued as a future park-and-ride facility
- The existing site be decommissioned after a replacement site is developed (phased construction concept)
- Full HOV access to 139th Street be considered
- Two-way access from 16th Avenue to the proposed park-and-ride, as well as access from 136th and 139th Street, should be considered.

The wetlands issue is potentially significant. If it cannot be resolved and if this makes the construction of a park-and-ride on the site impractical or infeasible, then the eastern site should be explored as a second choice.

Table 4 is a summary of the Salmon Creek Park-and-Ride evaluation.

TABLE 4. Salmon Creek Park-and-Ride Evaluation

Measure	Current Site	West of I-5	East of I-5/I-205	Comments
Consistent Land Use Available within 1 mile; site of at least 10 acres	Yes	Yes	Yes	Land is available adjacent to I-5 and I-205. Further from corridor land availability is questionable. Pending development approval on at least one candidate site.
Cost to relocate versus cost to improve current site	Approximately $5 million to construct parking garage and re-orient access to site.	Approximately $6 million to acquire land and construct surface parking lot and bus facilities	Approximately $6 million to acquire land and construct surface parking lot and bus facilities	With contingencies, costs are approximately the same
Accessibility of location to Interstate and arterials	Site is within interchange area, directly accessible from I-5 and I-205. Current site will likely lose NE 134th Street access with interchange reconfiguration and access from current 139th Street will be much less direct than current access. HOV access from I-5 requires weaving across two general-purpose lanes to exit to NE 134th during the p.m. peak (and vice versa for the a.m. peak).	Adjacent to and visible from I-5/NE 134th Street interchange. Local access improved with new 139th crossing of I-5. Accessible from I-205 but more remote than current or east site. If HOV "T" ramp built to 139th Street, access will be direct for HOVs and buses.	Adjacent to I-205/NE 134th Street interchange, needs extension of NB off ramp at NE 134th Street interchange and/or new 139th Street crossing of I-5 to be fully accessible from I-205. Accessible from I-5 but more remote than current or west site.	Accessibility to new sites would be greatly improved with 139th Street extension across I-5. Access to new sites from current 139th Street would require road improvements and would still be circuitous. Access to current site after NE 134th Street interchange reconstruction will be circuitous. HOV-only ramp to/from I-5 to 139th Street crossing greatly improves east or west site access and transit operations.
Bicycle/Pedestrian access	Good access from NE 134th Street. Bicycle/pedestrian access will likely remain from NE 134th Street even with interchange reconstruction.	No direct bicycle/pedestrian access from NE 134th Street corridor. Will require access road improvements to ensure access distance is at most ¼ mile (limits of limits of pedestrian/walking threshold to transit).	No direct bicycle/pedestrian access from NE 134th Street corridor. Will require access road improvements to ensure access distance is at most ¼ mile (limits of walking/walking threshold to transit).	Current site has optimum bike/ped access from NE 134th Street corridor. East site has more potential transit users within walking distance than west site due to surrounding land uses.
Impacts on NE 134th Street corridor traffic operations (reduction from No-Build scenario)	PM peak VMT = 2,061 PM peak VHT = 675	PM peak VMT = 2,111 PM peak VHT = 656	PM peak VMT = 2,055 PM peak VHT = 630	Relocating the Park-and-Ride slightly improves traffic operations. With 139th extension, west site has slightly better traffic results compared to east site, and both are better than current site, but differences are insignificant.
Expandability of location	Can only be expanded by adding to parking garage, which requires retrofitting costs and may be impacted by County height limits. Could possibly treat new park-and-rides at NE 99th, NE 179th, and NE 219th as expansions of this park-and-ride. Could expand onto east or west park-and-ride site and operate as two lots with common bus service (see Northgate area in north Seattle). Need to address loss of parking during construction.	Site can easily be expandable into parking garage	Site can easily be expandable into parking garage	All sites are expandable.
Transit service	With loss of NE 134th Street access transit operations severely impacted (out-of-direction bus access). Easily connected to future light rail, HCT, or HOV system but all must be grade separated from NE 134th Street. Transit operations could be improved with bus-only or HOV-only slip ramp from NB on ramp. Transit could stop at site (flyer stops) from new upstream park-and-rides.	Connections to LRT, HCT, HOV about as good as current site, and requires less infrastructure to connect a station compared to east site. Bus operations could be improved with 139th Street connection and HOV-only ramp to/from I-5 at 139th Street.	Current and west sites are better for LRT, HCT, HOV connections. Transit operations may be best of the three with NB I-205 off ramp extension to 139th Street. HOV-only ramp to/from I-5 at 139th Street improves transit operations somewhat, but not as good as west site.	East site may impact LRT, HCT design if extended northward to the Fairgrounds, but would fit a WSU terminus. However, previous studies indicate that due to topography a WSU LRT/HCT terminus may be impractical and expensive. West site could serve as interim LRT terminus until extended to Fairgrounds.
Other Factors	Under LOS F conditions, likely the parking lot would fill up earlier than 6:30-7:30 AM time frame. The park-and-ride in its current location has a built-in clientele who may object at loss of current location or in losing parking spaces during interchange construction. Other new park-and-rides on I-5 corridor could act as expansion of current site. Upon closing site, may be viable as a wetland mitigation and stormwater treatment site.	Site has some known low-quality wetlands that would require study and permitting. Could build this site while maintaining current Park-and-Ride operations until construction is complete.	This site is closest in proximity to the largest number of users. Would likely be preferred as a second choice if the west site's wetlands issues cannot be resolved. Could build this site while maintaining current Park-and-Ride operations until construction is complete.	HOV-only ramp to/from I-5 to either west or east site is projected to carry up to 300 vehicles in 2020 pm peak hour, 1,000 persons per hour, similar to a general purpose ramp lane. Current site's revised access may result in a 5-minute delay for buses to get to I-5 – may be perceived as a 10-minute penalty by bus users.
STUDY RECOMMENDATIONS				
Study recommends relocating the Park-and-Ride to the west side of I-5. If the wetlands issues cannot be resolved at the west site, then the east site would be preferable to the current site.				

Interchange and Park-and Ride Design Issues

Several design issues arose during the Study regarding the interconnection between the local and Interstate facilities and the Salmon Creek Park-and-Ride. These design issues are summarized below.

- The westbound-to-southbound "loop" ramp included in the Salmon Creek/Fairgrounds Regional Road Plan at the NE 179th interchange would have an alignment that would take the ramp through an existing gas station on the northwest quadrant of that interchange.
- The westbound-to-southbound "loop" ramp included in the Salmon Creek Plan at NE 134th Street is problematic due to the 20th Avenue bridge piers (see below).
- To keep the current Salmon Creek Park-and-Ride open, it is likely that access will be eliminated from NE 134th Street as part of Clark County's identified improvements to the NE 134th Street corridor, and would need to be replaced with an access from 139th Street. Design alternatives use the current northbound on-ramp as the new access road.
- The northbound on-ramp from NE 134th Street is substandard to carry two-way traffic to the Park-and-Ride.
- Access to and from the north to the Salmon Creek Park-and-Ride needs to be simple and efficient. A "Texas U-Turn" was analyzed to determine whether it could provide such access.

Each of these design issues is discussed in greater detail in the following sections.

NE 134th Street "Loop Ramp"

The feasibility of constructing a loop ramp under the existing 20th Avenue bridge over I-205 was assessed. The bridge must be widened to accommodate the proposed lane configuration included in the study alternatives. In general, it appears that construction of a loop ramp will require that the ramp alignment, while adjacent to the bridge abutment, parallel said abutment on a tangent instead of being on a curve. A number of issues have been identified:

- Two preliminary loop ramp layouts were developed based on ***preferred*** and ***minimum*** design criteria. It was found in developing these designs that the existing abutment and pier locations for the 20th Ave. bridge require that the alignment parallel the abutment wall. Further, both ramp designs require the removal of the existing northbound on-ramp and southbound off-ramp.

- The loop alignment based on ***preferred*** design criteria extends into the Park-and-Ride area, conflicting with the existing bus turn around area.

- Using the ***minimum*** design criteria, the required profile to have adequate clearance under the 20th Ave. bridge would be approximately 7.3%. This slope is less than the 9% allowable for a ramp design speed of 30 mph (9% based on 7% plus 2% downgrade allowable extra).

- Sight distance was checked for the developed alignments and appears to be adequate although near the minimum.

- The loop ramp designs appear to prevent the proposed use of the existing northbound on-ramp structure as an alternative access to the existing Park-and-Ride site. The loop

also takes some of the infill area that was slated for use as part of a proposed park-and-ride garage. For these two reasons, it appears that maintaining a park-and-ride at the existing site is not feasible when using the loop ramp.

- The alignment underneath the bridge is adequately clear of the abutment wall, however the battered pile foundation may cause problems. Preliminary analysis based on as-built information indicates that there may be as little as 1' of cover between a required embankment cut for installation of retaining walls (assumed to be a soil nail wall) and the face of the pile. Further field investigation will be required to determine the exact in-ground pile locations and a structural analysis performed to verify that the bridge foundation can withstand the potential reduction in soil pressure acting on the pile during construction of the walls. Given the limited tolerance for the alignment design, a situation that would limit the allowable excavation near the existing piles or in which it is discovered that the alignment would expose the piles may prove to be a fatal flaw to the loop ramp alternative. The additional field and structural investigation was not performed as part of this analysis.

Based on the above, the study concludes that alignments exist that would allow the construction of a loop ramp while maintaining the existing 20th Ave. structure, including the proposed widening. The ramp cannot be constructed, however, without first relocating the existing southbound off-ramp and northbound on-ramp. If a design based on ***preferred*** design criteria is used, the alignment will extend into the existing Park-and-Ride site, likely requiring reconfiguration of the Park-and-Ride even if the existing Park-and-Ride access is maintained. One of the design options being evaluated as part of the access decision report includes both the loop ramp and maintaining the existing Park-and-Ride site by providing alternative access using the existing bridge from the northbound on-ramp. Both of the developed loop ramp designs appear to prevent use of the existing bridge, therefore limiting the option's feasibility. Therefore, the Study recommends modification of this alternative during the Modified Access Decision Study to require relocation of the Park-and-Ride to an alternate site.

Although the loop ramp is not part of the current County project, the decision to replace or widen the 20th Avenue bridge will come within the next 2 to 3 months as the County moves from 50 percent design to 100 percent design on the Highway 99 realignment project. This design review and decision should be addressed as one of the early action items during the eight-point access decision study for the NE 134th Street interchange.

Texas U-Turn for West Salmon Creek Park-and-Ride Site

HOV alternatives reviewed for the NE 134th Street interchange included the following:

- HOV "Texas-T" ramp to/from I-5 to a new 139th Street crossing (HOV-only northbound off- and southbound on-ramps)
- HOV "Texas U-Turn" for northbound traffic leaving the proposed western Park-and-Ride to access the northbound I-5 on-ramp without having to travel through the interchange using NE 134th Street

The study recommends no further consideration of the "Texas U-turn" option for facilitating northbound freeway access from the proposed Park-and-Ride location on the west side of I-5, because:

- The existing topography, and the proximity of new buildings on the west side of NE 16th Avenue, requires that the overpass structure be constructed close to the current NE 134th overpass, limiting left-turn storage from 16th Street to NE 134th Street.
- Texas DOT does not recommend installing such a U-turn as an overpass because the cost of the structure rarely meets benefit/cost criteria (an FHWA required analysis). In this case, the U-turn would be installed to facilitate traffic leaving the ~800 space Park-and-Ride to travel north (less than 100 vehicles in the p.m. peak hour). There would be little to no use by other traffic. Spending $1 million to $2 million to construct a facility that would see such limited use likely would not achieve a benefit/cost ratio greater than 1.
- This would be the only facility of its type in the region, potentially causing to motorist confusion.

If there is strong WSDOT or public interest to pursue this option, it can be reintegrated into the design options.

Northbound On-Ramp Conversion to Park-and-Ride Access

If the Salmon Creek Park-and-Ride stays at its existing site, some of the NE 134th Street design alternatives include converting the current northbound on-ramp (Bridge #205/48, MP 36.97 on the bridge inventory) to the park-and-ride entrance driveway. The existing bridge is 27 feet wide, curb-to-curb, and was built in 1973. Given its age and design, the bridge may require seismic upgrades in the future.

The following design issues are associated with this bridge:

- At its current 27-foot width, this bridge can accommodate two 12-foot lanes plus about 1 foot of shoulder on each side. Under current design standards, the bridge would ideally provide two 12-foot lanes with two 4-foot shoulders, resulting in a 32-foot width. This widening would cost approximately $300,000 ($150/square foot * 5 feet * 400 foot length). This is rather expensive for a bridge that would carry about 1,000 vehicles a day (450 park-and-ride vehicles in, 450 out, 100 bus trips per day).
- The bridge may require seismic retrofitting. Typically, minor bridges are low priority for funding of seismic retrofits; however, because this would be the only access to a regional public facility (park-and-ride), it could receive higher priority if responsibility for the upgrade is turned over to C-Tran.

At this point in the study, WSDOT directed the consultant team to use full design standards in the cost estimate and analysis of the Park-and-Ride access road/bridge.

Interchange and Mainline Design Recommendations

Mobility, safety, and multimodal elements from the transportation alternatives were used to develop design options for the I-5 and I-205 mainlines as well as interchanges on those facilities.

Designs considered access to current and future Park-and-Rides, sidewalks, and bicycle lanes on intersecting roadways. Designs also were intended to meet 20-year transportation demand.

A series of design workshops were held with members of the advisory committees for this study (see Public Involvement chapter for a description of the committees) as well as consultant and WSDOT design staff. A variety of design alternatives were developed. They were screened for cost, practicality of funding and construction, consistency with local and regional plans, and consistency with WSDOT plans and standards.

The remaining design alternatives were then evaluated. Based on the environmental and transportation analyses, as well as preliminary design options for the alternatives presented the following corridor improvement strategies were developed:

I-205 CORRIDOR

Mainline

- Construct one additional lane between the NE 134th Street interchange and through the Padden/NE 83rd Street interchange.
- Reserve an envelope (space reserved for future use) for HOV/High-Capacity Transit system in median of I-205.

NE 83rd Street/Padden Parkway Interchange

- Widen southbound on-ramps to accommodate future ramp metering
- Widen northbound off-ramp from mainline to two lanes (one lane to westbound Padden, one lane to eastbound Padden)
- Consider adding second northbound-to-eastbound exit lane for transit priority to proposed Central County Park-and-Ride

No New I-205 Interchange at NE 50th Avenue

- Interchange is projected to serve mainly local trips (origins or destinations within 1 mile of the interchange) and not regional/interstate trips
- Improvements at the NE 134th Street and NE 83rd Street interchanges, combined with local arterial improvements, can provide capacity needed to accommodate 20-year demand in the area
- A new interchange should not be pursued at this time. Reconsideration may be appropriate if: (1) the urban growth area expands northward along NE 50th Avenue and (2) the additional urban comprehensive plan designations would result in generating trips of a regional or interstate nature.

I-5 CORRIDOR

Mainline

- Accommodate HOV lanes to NE 134th Street
- Provide for auxiliary lanes between I-5/I-205 junction and NE 179th Street in both directions (four-lane cross section)
- Consider auxiliary lanes between NE 179th Street and NE 219th Street as part of Access Decision Study for NE 219th Street proposed interchange

- No eight-lane cross section is needed north of NE 219th Street in 20-year horizon
- Design HOV ramps at 139th Street to allow for future extension of HOV system north of NE 134th Street

NE 134th Street Interchange

Salmon Creek Park-and-Ride

- Expand the number of parking spaces to at least 800 vehicles
- Relocate the Park-and-Ride to a location west of I-5, adjacent to the corridor
- If the western site is not feasible, consider relocation to a site east of and adjacent to I-205
- Carry forward current Park-and-Ride site, expanded to a parking garage, as a design option for the Access Decision Study for the NE 134th Street interchange
- NE 99th Street Park-and-Ride should be considered as an expansion of capacity, not a replacement for the Salmon Creek Park-and-Ride

Design Options to Carry Forward into Access Decision Study

The study recommends that the following design options be carried forward into the Access Decision Study. These design options tend to build on each other and enable the Access Decision Study to analyze and evaluate differences between different design components. Each design option to be carried forward and the elements included are listed below.

General

- No realignment of I-5/I-205 junction
- Diagrammatic signs for southbound I-5 approaching I-205
- Auxiliary lanes in each direction between NE 179th Street and I-5/I-205 junction
- All options (except no-build) that retain the current Park-and-Ride site to use current northbound on-ramp to access the site. Connect the north ramp terminus to 139th Street. Widen bridge crossing of I-205 to accommodate two-way traffic that includes both buses and automobiles.

No-Build (Option 1)

- Current Highway 99 realignment project by Clark County
- Required as a basis of evaluating "build" options
- No relocation of Park-and-Ride

Local Improvements Alternative (Option 2)

- One of "8-points" of the Access Decision Study
- New 139th Street and 154th Street crossings of I-5
- If one of the new crossings is not included, widen NE 134th Street to six lanes to maintain LOS D (concurrency threshold) along the corridor

- Highway 99 realignment project
- Improvements to NE 10th Avenue, extension of northbound I-205 off ramp to 139th Street
- Park-and-Ride at its current location

Transit/TDM/TSM Alternative (Option 3)

- Full implementation of traffic signal coordination improvements along NE 134th Street corridor
- Widened northbound off-ramps to include additional turn lanes
- Widened southbound on-ramps to accommodate ramp metering
- HOV ramps to/from I-5 HOV lanes
- Relocated Salmon Creek Park-and-Ride west of and adjacent to I-5
- 139th Street and 154th Street crossings

Full Diamond with I-205 Loop (Option 4)

- Westbound-to-southbound I-205 "loop" ramp, as shown in Salmon Creek/Fairgrounds Plan
- Conversion of NE 134th Street/I-5 interchange to "full diamond"
- 154th Street crossing of I-5
- Current Park-and-Ride location
- No HOV ramps

I-205 Flyover Option (Option 4A)

- Instead of loop, flyover ramp to southbound I-205 at the northbound off-ramp, ramp extension collector to 139th Street
- Current Park-and-Ride site
- NE 134th Street/I-5 "Full Diamond"
- Removal of 200 p.m. peak hour vehicles (2020) from westbound NE 134th Street from I-205 to current Highway 99, including 20th Avenue intersection (highest volume intersection in corridor)
- New 154th Street crossing of I-5

I-205 Flyover Option with 139th Street (Option 4B)

- Instead of loop, flyover ramp to southbound I-205 at the northbound off-ramp, ramp extension collector to 139th Street
- NE 134th Street/I-5 "Full Diamond"
- Current Park-and-Ride site
- Removal of 200 p.m. peak hour vehicles (2020) from westbound NE 134th Street from I-205 to current Highway 99, including 20th Avenue intersection (highest volume intersection in corridor)
- New 154th Street crossing of I-5

- New 139th Street crossing of I-5

Full Improvements Option

- HOV ramps to/from I-5 at 139th Street
- Relocated Salmon Creek Park-and-Ride west of and adjacent to I-5
- Flyover ramp to I-205 southbound
- 139th and 154th Street crossings
- Access to new Park-and-Ride from southbound off-ramp to NE 134th Street

NE 179th/NE 219th Interchanges

- NE 179th Street single point urban interchange (SPUI) only
- NE 179th Street SPUI with flyovers
- NE 219th Street interchange only (no other improvements to NE 179th)
- Both NE 179th Street SPUI and NE 219th Street interchanges
- West-side access gained by frontage road along west side of I-5 between NE 219th Street and 209th Street

NE 219th Street Design Options

Option 1

- New interchange at NE 219th Street, with off-ramp from I-5 northbound in combination with the Gee Creek Rest Area off-ramp, with the NE 219th ramp directly behind the rest area
- Connection to NE 219th Street just east of I-5
- Overpass connecting NE 219th Street to the west side of I-5

Option 2

- New interchange at NE 219th Street, with off ramp from I-5 northbound in combination with Gee Creek Rest Area off ramp directly behind the rest area
- Connection to NE 219th Street 0.2 mile east of I-5 rather than adjacent to the highway
- Overpass connecting NE 219th Street to the west side of I-5, and continuing with an extension to Hillhurst Road

Option 3

- New interchange at NE 219th Street, with off-ramp from I-5 northbound directly north of Gee Creek Rest Area with grade separated ramp over the rest area's on-ramp
- Rest area on-ramp to I-5 northbound would be in combination with NE 219th Street on-ramp
- Overpass connecting NE 219th Street to the west side of I-5.

Other Recommendations

- Arterial extension of NE 219th Street west to Hillhurst is a post-2020 consideration for the local planning process.

Note: All of the NE 219th Street "build interchange" options assume a new park-and-ride site east of I-5 with access to/from NE 219th Street extension. Another park-and-ride at the NE 179th Street interchange is assumed to be built west of I-5. The Study recommends that further investigation is needed to site a park-and-ride at the NE 179th Street interchange.

These design options also allow for a future extension of NE 219th Street westward to NW 31st Avenue/Hillhurst Road. An optional frontage road could be included from the interchange along the west side of I-5 (mostly within the I-5 right-of-way) to 209th Street, or northward to the cul-de-sac that connects to Carty Road.

269th Street/NW Pioneer Street Interchange

Note: All options assume replacement and widening of the current two-lane overpass, as well as widening the northbound off-ramp, southbound on-ramp, and southbound off-ramp to two lanes. These options also assume the current urban growth boundary with 20-year land use projections, and do not assume development of the proposed Shoalwater Tribe trust land. Additionally, there are discussions regarding a mixed-use development on the east side of I-5 at the interchange. Current zoning calls for industrial development. If the mixed-use development is approved, the comprehensive plan amendment process should include a transportation impact analysis to revisit these recommendations.

Interchange

All of the recommended design options for this interchange include the following interchange improvements:

- Widen existing northbound off, southbound on, and southbound off-ramps to include two turn lanes
- Widen I-5 overpass to four lanes
- Forward new crossing of I-5, south of interchange, to local planning process as a local circulation improvement (new crossing does not reduce interchange capacity needed; thus, it is not a freeway-dependent project)
- Two crossing options: 259th Street and 262nd Street—262nd Street ties in best with current circulation roads, but has potential significant right-of-way and property access impacts on both sides of I-5; 259th Street has least property and access impacts, but unless master planning accommodates crossing on both sides of I-5, may not present best option for local traffic circulation

In addition to the improvements listed above, each design option includes elements specific to that option, as outlined below.

- Improve existing interchange
- Cul-de-sac Timm Road
- Crossing at 259th Street or 262nd Street, with intersection at or near NE 11th Avenue and 264th Street

Interim Improvements to SR 501/NW Pioneer Interchange

An analysis was conducted to examine the potential for interim improvements to the SR 501/ NW Pioneer Street interchange. This was conducted in response to WSDOT's interest in developing a public/private project to provide short-term congestion relief to the SR 501 corridor from I-5 to Ridgefield. A Year 2010 travel volume data set was developed by interpolating between existing (1998) volumes and the Year 2020 travel projections. The Synchro-SimTraffic analysis package was used to simulate traffic and measure level-of-service.

The results showed that without improvements, the SR 501 corridor would be at LOS C at the interchange in 2010, and at LOS F in 2020. Although the level-of-service in 2010 meets standards, the "95 percent probability" ramp queuing length (the estimated maximum length of queue 95 percent of the time) is projected to exceed the northbound off-ramp storage length, which would extend queues onto the mainline and exacerbate the current high-accident location.

The following were recommended as "interim" improvements to the SR 501 corridor:

- Signalize the ramp intersections with SR 501
- Widen the northbound off ramp, and the southbound off-ramp, to two lanes at the intersection with SR 501
- Widen SR 501 at NW 19th Street to include a westbound left-turn lane
- Close Timm Road at SR 501

Other Options Not Recommended in Corridor Strategy

Design Options

- I-5 southbound ramp would enter onto freeway at south of a new crossing at 259th Street (this is the "split diamond" configuration); this option could include a new 259th Street extension between I-5 and NE 10th Avenue
- Slip ramp from southbound on-ramp to Timm Road
- Slip ramp from northbound off-ramp directly to NW 11th Avenue between NW 264th and 265th Streets

NW 319th Street / NW La Center Road Interchange

Option 1

- Widen the overpass with an additional lane in each direction
- Widen the northbound off-ramp and the southbound on-ramp
- Signalize the off-ramp and on-ramp intersections

The 2020 travel forecast indicates that the two-lane rural arterial link between this interchange and downtown La Center will be operating at LOS E/F conditions.

Evaluation and Design

Tables 5 and 6 below provide a simplified summary of the alternative evaluations. Summary tables are attached at the end of this report which shows the detailed alternative evaluation and

results. Additionally, design alternatives and cost estimates are attached to the end of this report as well. Design was taken to a level to support the environmental analysis and Route Development Plan, which is approximately the 20 percent level. Cost estimates included a contingency of 25 percent.

Figure 12 summarizes the Recommended Corridor Improvement Strategy.

Table 5. NE 134th Street Interchange Evaluation

	Circulation and Access						Benefit/Cost Analysis			Reduces Vehicle Demand		Mobility			Environmental			Study Recommendation (For Access Decision Study Inclusion)
Option	I-5 Access	I-205 Access	HOV Access	Park-and-Ride Location	139th Crossing	154th Crossing	Cost ($Millions)	Benefit ($Millions)	B/C Ratio	Park-&-Ride Access	HOV/HCT	NE 134th LOS	NE 134th Travel Time	Accommodates Post-2020 Demand	Wetlands	Air Quality	Noise	
1: No-Build	Current	Current	No	Current	No	No	---			◐		F		○	●	○	○	Include in Access Decision Study (required)
2: Local Improvements	Current	Current	No	Current	Yes	Yes	$32	$186	**5.78**	◐		D		●	●	●	◐	Include in Access Decision Study (one of eight points)
3: Transit/ TDM/TSM	Current	Current	Yes	West	Yes	Yes	$56	$190	**3.41**	●	●	D		●	○	●	●	Include in Access Decision Study (Higher B/C than 4B)
4: Full NE 134th Diamond with I-205 Loop	Diamond	Loop	No	Current	No	Yes	$47	$170	**3.61**	○		E		◐	●	◐	◐	Include in Access Decision Study (includes "I-205 Loop")
4A: Full Diamond, I-205 Flyover	Diamond	Flyover	No	Current	No	Yes	$44	$172	**3.95**	○		E		◐	◐	◐	◐	Include in Access Decision Study
4B: Full Diamond, I-205 Flyover, 139th	Diamond	Flyover	No	Current	Yes	Yes	$57	$187	**3.28**	○		D		◐	◐	●	◐	TAC Recommended Including in Access Decision Study
5: Split NE 134th Diamond, I-205 Flyover (Full Improvements)	Spl. Diam.	Flyover	Yes	West	Yes	Yes	$66	$192	**2.91**	●	●	D		●	○	●	○	Include in Access Decision Report

○ Performs Least Well

◐ Average Performance

● Performs Best

Table 6. Evaluation of Other Interchanges

	Transportation Impacts						Benefit/Cost Analysis			Reduces Vehicle Demand		Level-of-Service			Environmental			
Location	**Mobility**	**Safety - Corrects HAL/HAC**	**Planned HOV Access**	**Park-and-Ride Adjacent**	**Primary Trip Types**	**Bike/ Pedestrian Facilities**	**Cost ($Millions)**	**Benefit ($Millions)**	**B/C Ratio**	**Park-&-Ride Access**	**HOV/HCT**	**Mainline LOS Improvement?**	**State Highway LOS Improvement?**	**Accommodates Post-2020 Demand**	**Wetlands**	**Air Quality**	**Noise**	**Study Recommendation**
I-205/NE 83rd /Street Interchange	●	●	Unknown	Planned	Regional	Planned	2-3	---		◐	◐	Yes	No	●	◐	●	●	Widen current interchange as proposed
I-205/NE 50th Avenue Interchange	○	○	No	No	Local	Planned	$20	Unknown	**---**	○	○	No	No	●	●	●	○	Do not include in Corridor Plan
I-5/NE 219th Street Interchange Alone	◐	◐	No	Planned	Regional	No	$28	$119	**4.25**	●	○	Slight	SR 502 south of NE 219th	◐	○	◐	◐	Include in Access Decision Study
Both NE 179th and NE 219th Street Interchanges	●	●	No	Planned	Regional	No	$79	$194	**2.46**	●	○	Slight	SR 502 south of NE 219th	●	○	◐	○	Include in Access Decision Study
NE 179th and NE 219th Street Interchanges with Extension to Hillhurst	◐	●	No	Planned	Regional	No	$89	$174	**1.96**	●	○	No	No	◐	○	◐	○	Do Not Include in Access Decision Study (Hillhurst Extension is a Post-2020 Improvement need)
NE 179th Street Single Point Urban Interchange (SPUI)	○	◐	No	Planned	Regional	Yes	$60	$94	**1.57**	◐	○	Slight	No	◐	◐	◐	◐	Include in Access Decision Study
NE 179th Street SPUI with Flyovers	◐	●	No	Current	Regional	Yes	$94	$197	**2.10**	◐	○	Slight	No	◐	◐	●	◐	Include in Access Decision Study

○ Performs Least Well

◐ Average Performance

● Performs Best

Table 6. Evaluation of Other Interchanges (Continued)

	Transportation Impacts						Benefit/Cost Analysis			Reduces Vehicle Demand		Level-of-Service			Environmental			
Location	Mobility	Safety - Corrects HAL/HAC	Planned HOV Access	Park-and-Ride Adjacent	Primary Trip Types	Bike/ Pedestrian Facilities	Cost ($Millions)	Benefit ($Millions)	B/C Ratio	Park-&-Ride Access	HOV/HCT	Mainline LOS Improvement?	State Highway LOS Improvement?	Accommodates Post-2020 Demand	Wetlands	Air Quality	Noise	Study Recommendation
NW Pioneer Street Interchange Improvements Only	●	●	No	Current	Regional	Yes	$8	$33	**4.13**	◐	○	Yes	No	●	●	●	●	Include as a WSDOT Project in Corridor Plan
NW Pioneer Street Interchange with 259th Street Crossing	●	●	No	Current	Regional/ Local	Yes	$14	$36	**2.57**	◐	○	Yes	SR 501	●	◐	●	●	Include in Corridor Plan (259th Crossing is a local project)
NW Pioneer Street Split Diamond with 259th Street Crossing	○	●	No	Current	Regional/ Local	Yes	$20	$30	**1.49**	◐	○	Yes	No	◐	◐	◐	●	Do not include in Corridor Plan
NW Pioneer Street Split Diamond with 259th Extended to NE 10th Avenue	◐	●	No	Current	Regional	Yes	$24	$31	**1.29**	◐	○	Yes	No	◐	○	◐	◐	Do not include in Corridor Plan
NW 319th Street Interchange Improvements only	●	N/A	No	Current	Regional	No	$5	---	**---**	○	○	No Impact	No	◐	◐	●	●	Include in Corridor Plan
NW 319th Street Interchange Improvements with Realigned Frontage Roads	●	N/A	No	West	Regional	No	7-10	---	**---**	○	○	No Impact	No	●	○	●	◐	Do not include in Corridor Plan; little justification due to small side street traffic volumes
I-5 Mainline																		
I-205 Mainline																		

○ Performs Least Well

◐ Average Performance

● Performs Best

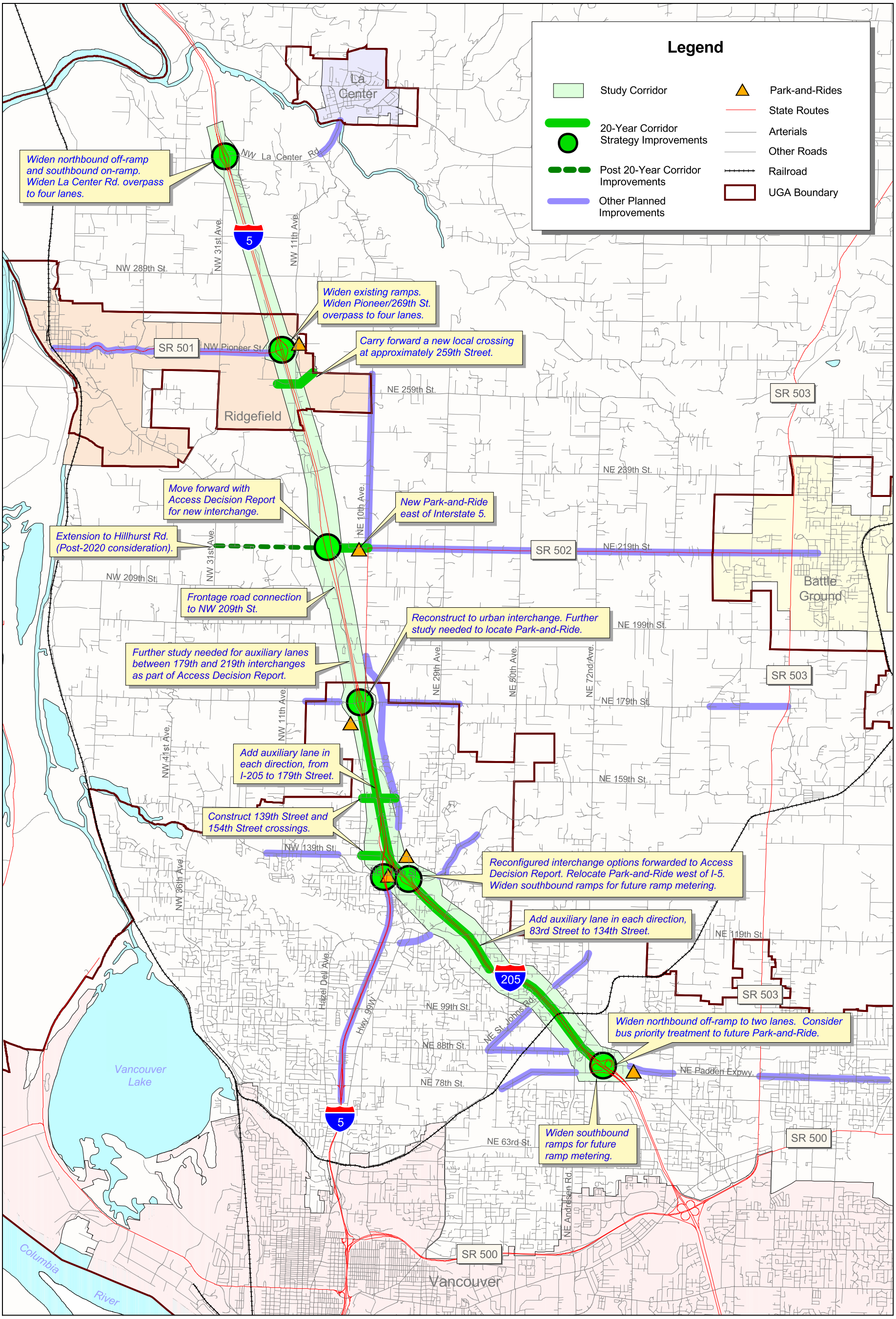


FIGURE 12

I-5/I-205 NORTH CORRIDOR STUDY

Recommended Corridor Strategy Improvements

N

1 0 1 Mile

Washington State Department of Transportation

4.0 ENVIRONMENTAL IMPACT ANALYSIS

Purpose of Environmental Analysis

The purpose of the environmental analysis for the I-5/I-205 North Route Development Plan (NRDP) is to evaluate the proposed corridor improvements in terms of impacts to wetlands; listed fish, wildlife, and plant species; priority habitat; culverts; cultural (archaeological) resources; hazardous materials sites; noise; and traffic. Before assessing environmental impacts associated with specific interchange improvements proposed by WSDOT, baseline environmental data were collected. Baseline data were obtained from U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory maps, Priority Habitat and Species (PHS) data, Federal Emergency Management Agency (FEMA) floodplain maps, Clark County GIS database, Natural Heritage Program database, and species information from USFWS and the National Marine Fisheries Service (NMFS). Field observations of existing conditions were made at areas and interchanges slated for improvement. Culverts along the Interstate highway corridor were examined for fish passage. The results of these culvert assessments were summarized in the final baseline conditions report (Parsons Brinckerhoff Quade and Douglas, Inc. and The JD White Company, Inc, 1999). A need to identify and quantify specific environmental impacts within the study corridor resulted from the baseline report.

Environmental Parameters

The following elements were used to identify environmental issues or concerns that could affect the study alternatives:

Wetlands: Potential wetland areas were identified in the study corridor using the Clark County soil survey (McGee, 1972), National Wetlands Inventory Maps, and during brief field visits**.** No on-site wetland assessments or delineations were conducted.

Culverts: Twenty-four culverts were assessed directly (in early May 1999) for fish passage issues. The following information was collected for each culvert: watercourse, specific mile location, length of culvert, culvert construction material at the upstream and downstream exposure, flow direction, eco-type, and ability for passage by fish. Measures to restore or improve passage were also identified.

Listed Species: Information on the occurrence of listed species within the study corridor was obtained from the Washington Department of Fish and Wildlife (WDFW) PHS data, the Washington Natural Heritage Program, NMFS, and USFWS. Data on species' occurrences provided by state and federal agencies were received in 1998 and winter 1999. To date, no comprehensive field assessments or surveys have been conducted to verify the presence or absence of listed fish, wildlife, or plant species.

Priority Habitat: Areas mapped as priority riparian habitat, non-riparian habitat, and overlapping riparian and non-riparian are regulated by WDFW and are subject to the Habitat Ordinance of Clark County.

Hazardous Materials Sites: The location and type of hazardous materials sites within the study corridor were investigated**.** The location of registered hazardous sites was verified through brief field visits. The potential presence of non-registered sites, such as residences with heating oil tanks, was evaluated only by field visits.

Cultural Resources: The project area was surveyed for archaeological sites in existing rights-of-way for the target interchanges. No cultural sites have been recorded.

Noise and Traffic: Noise and traffic issues were evaluated for the various corridor improvement alternatives.

Analysis of Target Interchanges

A summary of the environmental elements reviewed at each of the target interchanges being considered in this study follows.

I-205 / NE 83rd Interchange

Only one option was analyzed. Findings of that analysis follow.

- It appears that only two environmental parameters could be directly affected — listed fish in Curtin Creek and Hazardous Materials Site #50.
- Two culverts, located at the intersection of NE 78th and I-205, could potentially be reconstructed to restore fish habitat.
- Listed fish that have been found in Curtin Creek include coastal cutthroat trout (*Oncorhynchus clarki clarki*), (winter-run) steelhead (*O. mykiss*), and Coho salmon (*O. kisutuch*).

No archaeological resources have been documented for this interchange, although sites near streams and associated wetlands generally have a high potential for archaeological sites.

I-5 / I-205 / NE 134th Interchange

A variety of design alternatives were developed and analyzed for this interchange. Descriptions of the alternatives are included in the previous chapter. The analysis indicates that:

- The same amount of riparian habitat is likely to be impacted by all options.
- Impacts to wetlands may be slightly greater for options which include a 139th Street crossing.
- Four culverts are in the vicinity of this interchange, but only one, located at mile marker 8.2, is located near suitable fish habitat and could therefore benefit from reconstruction.
- Listed fish that have been found in Salmon Creek include coastal cutthroat trout, steelhead (winter-run), Coho salmon, and Chinook salmon (*O. tshawytscha*).
- All options are likely to impact a Hazardous Materials Site in the vicinity, which is affecting soil and groundwater through petroleum release from leaking underground storage tanks (LUSTs).
- No archaeological resources have been documented for this interchange, although sites near streams and associated wetlands generally have a high potential for archaeological sites.

The following table is a comparison of the environmental impacts of the design alternatives for the I-5/ I-205/NE 134th Interchange.

	Estimated Potential Area Impacts			Potential Impacts to Listed Species (Number of Species Potentially Impacted)		
Option	Wetland Habitat	Riparian Habitat	Riparian and Non-Riparian	Plants	Fish	Wildlife
1	0.1 ha	0.2 ha	0.2 ha	1	1 or more	0
2	0.1 ha	0.2 ha	0.0 ha	1	1 or more	0
3	+ 0.1 ha	0.2 ha	0.4 ha	1	1 or more	0
4	+ 0.1 ha	0.2 ha	0.4 ha	1	1 or more	0
5	+ 0.1 ha	0.2 ha	0.4 ha	1	1 or more	0

ha = hectares

I-5 / NE 179th Interchange

For the two options are proposed (Option 1 being a Single Point Urban Interchange (SPUI) and Option 2 being a SPUI with a flyover):

- The same amount of wetland habitat is likely to be impacted by both options.
- Option 2 impacts slightly more riparian habitat due to the location of the flyover.
- The flyover would incur impacts to a developed section of the mapped Riparian Habitat.
- Option 1 could potentially impact eight Hazardous Materials Sites, whereas Option 2 could potentially impact 10 sites.
- Reconstruction of the culverts at this intersection is not recommended based on the complex configuration of the culverts and based on the unsuitable habitat for salmonids. Additionally, the culvert located south of NE 159th Street near Mile Marker 8.2 would need to be enhanced in order for fish to reach the culverts at NE 179th Street.
- Listed fish that have been found in Whipple Creek include coastal cutthroat trout, steelhead (winter-run), Coho salmon, and Chinook salmon.
- No archaeological resources have been documented for this interchange, although a high potential for archaeological sites exist near streams and associated wetlands.

	Estimated Potential Area Impacts			Potential Impacts to Listed Species (Number of Species Potentially Impacted)		
Option	Wetland Habitat	Riparian Habitat	Riparian and Non-Riparian Habitat	Plants	Fish	Wildlife
1	0.8 ha	2.7 ha	0	1	1 or more	0
2	0.8 ha	2.8 ha	0	1	1 or more	0

I-5 / NE 219th Interchange

For the three options proposed for this interchange:

- Impacts to wetland habitat are slightly greater for Option 2.

- Option 1 would impact the greatest amount of riparian habitat (4.7 hectares), and Option 3 would impact the least amount (4.4 hectares).
- There is a listed plant, tall bugbane (Cimicifuga elata) in the vicinity of this interchange. Option 2 is not likely to impact the listed plant species tall bugbane, whereas the other two options may impact this plant.
- Extending NE 219th to Hillhurst Road has the potential to impact wetlands. Hydric soils are mapped just east of Hillhurst Road, suggesting wetlands may be present.
- Three culverts are located under the interstate highway at this interchange; only one, located at mile marker 10.7, has the potential to be enhanced based on the presence of suitable fish habitat. Two other culverts located in the Gee Creek Rest Area currently allow for fish passage.
- All options have the potential to impact Hazardous Materials Site #R13, which is a residence that may contain LUSTs.
- Listed fish that have been found in Gee Creek include coastal cutthroat trout, steelhead (winter-run), Coho salmon, and Chinook salmon.
- No archaeological resources have been documented for this interchange, although a high potential for archaeological sites exist near streams and associated wetlands.

	Estimated Potential Area Impacts			Potential Impacts to Listed Species		
Option	Wetland Habitat	Riparian Habitat	Riparian and Non-Riparian	Plants	Fish	Wildlife
1	0.2 ha	4.7 ha	0	1	1 or more	0
2	0.3 ha	4.6 ha	0	0	1 or more	0
3	0.2 ha	4.4 ha	0	1	1 or more	0

I-5 / NW Pioneer Street Interchange

For the three options proposed for this interchange:

- Field verification of registered hazardous materials sites has not yet been completed, nor has a field assessment of non-registered hazardous sites.
- One Hazardous Materials Site appears to be located in the southwest quadrant of the interchange. The site is a Clark County Public Works facility with registered underground storage tanks (USTs). No leaking has been reported, although USTs that are nearly 20 years old or older have most likely leaked.
- A blocked culvert is located at mile marker 12.7 at the intersection of NE 262nd and I-5. Presently, the riparian areas on either side of the interstate are not likely to support anadromous fish; therefore, culvert improvements for fish restoration are not recommended.
- Coastal cutthroat trout, including anadromous forms, have been found in Allen Canyon Creek.
- Potential impacts to non-riparian habitat would occur in the footprint of an existing road.
- Archaeological surveys in the right-of-ways have not yet been conducted for this interchange.

	Estimated Potential Area Impacts			Potential Impacts to Listed Species		
Option	Wetland Habitat	Riparian Habitat	Non-Riparian Habitat	Plants	Fish	Wildlife
1	0	1.1 ha	0	0	1	0
2	0	1.1 ha	0	0	1	0
3	0	1.1 ha	0.09 ha	0	1	0

I-5 / NW 319th Interchange

Only one option was analyzed for this interchange. The analysis indicates that:

- Depending on the extent of improvements, two wetland areas and at least three riparian areas could be impacted.
- Hazardous Materials Site #R16, United Salvage with LUSTs, is adjacent to the western boundary of the interchange.
- Hazardous Materials Site #R15, Texaco with USTs, is located outside of the eastern boundary of the interchange.
- No listed fish, wildlife, or plants are likely to be impacted by interchange improvements.
- A blocked culvert is located approximately 0.5 mile north of the interchange at mile marker 16.8. Culvert reconstruction is not recommended because this tributary to the East Fork Lewis River has a steep gradient and little water and is unlikely to support anadromous fish. The blockage should be removed, however.
- McCormick Creek, which is in the vicinity of the interchange, supports listed fish, including coastal cutthroat trout, steelhead (winter-run), and Coho salmon.
- No archaeological sites have been documented within the right-of-way of the interchange.

Recommendations for Future Environmental Investigations

If more detailed information and analysis of the various options is needed, the following tasks should be completed:

- Conduct on-site wetland delineations.
- Obtain updated information on the occurrence of listed species in the study corridor.
- Conduct on-site surveys for listed fish, plants, and wildlife species during the appropriate seasons.
- Evaluate fish habitat upstream and downstream of culverts.
- Conduct further archaeological investigation in areas with a high potential for cultural sites, including Curtin Creek, Allen Canyon Creek, Gee Creek, Salmon Creek, Whipple Creek, McCormick Creek, and associated wetlands. Conduct discovery probes in areas of high probability that will be impacted by construction.
- Conduct a field evaluation of registered and non-registered hazardous materials sites at the I-5/ NW Pioneer Street Interchange. Update information on the location of hazardous materials sites.

- Re-evaluate impacts when detailed engineering plans are available.

Environmental Guidelines for Future Project Implementation

An Environmental Checklist pursuant the State Environmental Policy Act (SEPA) has been prepared. The Checklist considers, from a programmatic-level, environmental impacts resulting from implementation of this Strategy Report and the I-5 / I-205 North Corridor Study Route Development Plan. A copy of the Checklist is included in the latter report.

The Checklist describes the existing environmental conditions of the corridor, considers potential impacts to occur during project-level implementation, and proposes general mitigation measures to avoid or minimize these impacts. At the time of project-level implementation, further detailed environmental analysis will occur. The general mitigation measures summarized below will be detailed to fit the particular conditions of the project objectives and design, environmental conditions and current regulatory authorities. Mitigation measures identified as part of the Strategy Report and Route Development Plan planning processes include:

- A stormwater control plan will be developed that conforms to Clark County and WSDOT guidelines to protect streams, floodplains, and wetlands during project implementation. Erosion and sedimentation control will include stabilizing disturbed areas with permanent grass cover, silt fencing, hay bales, geotextile matting, tackifiers, watering for dust control, and other Best Management Practices (BMPs).
- The potential for generating fugitive dust will be controlled by stabilizing disturbed soil areas with mulch and / or permanent vegetation cover following construction.
- Existing vegetation will be preserved to the extent possible. If it is necessary to disturb existing vegetation during project implementation, use of native plants in revegetation activities will be used where appropriate.
- Fish passage barriers will be improved to allow for upstream and downstream movement of salmonids within the corridor to the extent possible. Existing culverts at stream crossings that do not allow proper passage for migrating adult and juvenile salmonids will be evaluated and improved where feasible.
- Further field investigations and environmental analysis will be conducted to determine the level of contamination at and potential impacts of project implementation in or near known hazardous sites.
- To minimize noise disruptions, construction activities will be conducted primarily during normal daylight work hours.
- A qualified archaeologist will survey the areas affected by project implementation to determine the existence of any historic or cultural resources. In the event that historic or cultural resources are found within the project area, mitigation measures, potentially including avoidance and/or recovery will be taken before groundbreaking activities begin. In the event that any unknown archaeological resources are encountered during construction, ground-disturbing activities will be halted in the area of the find in accordance with applicable federal and state regulations, laws and statutes.
- All groundbreaking work in or adjacent to streams in the project area will be implemented according to applicable permits and other mitigation proposed as part of project specific environmental review documents.

- If any project actions are expected to adversely effect federally listed, proposed for listing, and candidate species, appropriate avoidance or minimization strategies will be developed in the project specific environmental review documents.
- Recommendations and project actions are designed to be compatible with existing and future land uses within the corridor area. If any inconsistencies are identified during project implementation, appropriate actions will be taken for resolution.
- Implementation of project actions in shoreline environments will be consistent with the applicable Shoreline Management Master Program and Shoreline Management Act.
- Implementation of the project actions will comply with all applicable federal, state and local laws, programs, and policies through analysis of baseline environmental conditions, project design, environmental protection during and after construction, and mitigation of environmental impacts as necessary.

Literature Cited

McGee, D.A. 1972. Soil Survey of Clark County, Washington. USDA Soil Conservation Service. US Government Printing Office, Washington, D.C. 113 pp + maps.

Parsons Brinckerhoff Quade and Douglas, Inc. and The JD White Company, Inc. 1999. I-5/I-205 North Corridor Study Baseline Conditions Report. Final Report. 104 pp.

5.0 ECONOMICS AND LAND USE

Introduction

This chapter summarizes the findings of the land use and economic analysis carried out for the I-5/I-205 North Corridor Study. The study included an assessment of the economic and land use impacts of a number of proposed and programmed changes to the corridor, i.e., lane additions, interchange improvements, and the construction of a new interchange. To carry out this analysis, WSDOT decided to use an Expert Panel to assess impacts to three specific locations within the corridor study area: La Center, Ridgefield, and Battle Ground.

Process

The Expert Panel analysis used for this project was based on a Delphi process. A Delphi process is a highly structured technique in which participants provide their assessment of likely future events or the impacts of potential transportation investments by responding to several questionnaires. These are questionnaires are then reviewed by a moderator, who tallies and summarizes the results of each round of questioning and provides the results back to the participants. The Delphi process is considered complete when the responses to successive questionnaires do not markedly change. Participants are selected according to their expertise in the relevant field and represent a variety of disciplines (i.e., developers, planners, public officials, academics). Participants remain anonymous during the analysis period so that individual personalities do not dominate the process.

For this project, the consultants, in conjunction with WSDOT, selected a total of six panel members, three from the Vancouver-Portland metropolitan area and three from out of state. Their identities were kept anonymous until the end of the process, which included two rounds of questions and answers. Each panel member was given a summary of the entire panel's responses to the first questionnaire, and was given an opportunity to revise his initial analysis. The results from the second round were then summarized and given back to the panel. This process was capped off with a two-day workshop in Clark County, Washington. During this event, participants had an opportunity to meet with their fellow Expert Panel members as well as to present and discuss their analysis with the members of the project's Technical Advisory Committee, Policy Advisory Committee, and Citizen and Business Advisory Committee, as well as the public.

Expert Panel Charge

For each of three study areas (La Center, Ridgefield, and Battle Ground), the panelists were asked to asses the development impacts on three types of land uses (residential, commercial, and industrial) over the next 20 years, with and without the proposed "catalyst" highway projects. The final question asked for an assessment of the effects on downtown Battle Ground from the proposed interchange on I-5 aligned with SR 502. Note that the panel was instructed to assume that the State's Growth Management Act remained in force, but that zoning and planned land uses could be altered according to their assessment of market forces.

Tables 2 through 4 are summaries of the panel's analysis organized by location.

Conclusion

Overall, the panelists noted that there are factors other than the proposed transportation projects that would play key roles in economic and land use development. In particular, three themes appeared frequently in their analyses:

- Economic changes in the Portland-Vancouver metropolitan area will have a strong influence on growth in northern Clark County.
- Policy and planning decisions will be of great importance, including the vision that elected officials and policy makers have for their cities.
- The provision of utilities (i.e., sewer and water) will play a key role in determining the location and pace of growth.

Finally, in the absence of deliberate strategies, there likely will be strong pressure for traditional highway commercial development around the proposed interchange at I-5/SR 502. Although current zoning would not support this type of development, interchanges in high growth areas generate strong pressures to allow the type of land uses most easily drawn to interstate interchanges: sprawl-style commercial development.

Planning to mitigate unwanted development is necessary, but it is not sufficient to bring about the desired development. For example, the Expert Panel did not foresee a strong interest in industrial development at the proposed new interchange with SR 502, given Ridgefield Junction's prime position for serving this function in the foreseeable future.

That said, it is possible to mitigate unwanted development impacts. To do so, it is necessary to engage in comprehensive long-term planning. This requires agreement on the amount, type, and character of development that is desired, and, most importantly, the use of strategies and tools that can guide development toward that definition. Two strategies that can provide greater control over the timing and nature of development are: (1) land banking, which involves government purchase of land in order to hold it for desired future development, and (2) the creation of a Major Industrial Zone under the provisions of RCW 36.70A.365, which permits the development of an industrial employment center outside designated growth areas.

Summary of Findings

Tables 7 through 9, below, summarize the analysis conducted by the WSDOT I-5/I-205 North Corridor Study Expert Panel.

Table 7. Land Use and Economic Impacts – La Center Interchange Area

Interchange Area	Type of Land Use/Impact			
	Residential	Commercial	Industrial	Urban Growth Area
NW La Center Rd. (La Center)				
	Some residential growth likely in the city. The interchange improvements will not have much of an effect, one way or the other.	Any commercial development that takes place would likely be at the interchange with our without the improvements. Development will be more dependent on bringing the interchange into the city's urban growth area (UGA), necessary planning, and the provision of utilities.	The Expert Panel did not agree on whether or not the interchange improvements would have much effect on industrial development. However, industrial development at the interchange will be more dependent on bringing the interchange into the city's UGA, necessary planning, and the provision of utilities.	La Center's distance from the interchange and its location far to the north of Clark County's growth pressures make it unlikely that there will be pressure on its UGA as a result of improvements to the interchange.

In general, the panel agreed that the highway and interchange improvements were not likely to be consequential to development in La Center or around the interchange area. Instead, the inclusion of the interchange within La Center's UGA, planning, and the provision of utilities will be as or more important to development than improvements to the interchange itself.

Table 8. Land Use and Economic Impacts – Ridgefield Interchange Area

Interchange Area	Type of Land Use/Impact			
	Residential	Commercial	Industrial	Urban Growth Area
SR 501 (Ridgefield)				
	The proposed interchange improvements will play an important role in future residential development and may affect its location. With the interchange improvements, it is possible that residential growth may be drawn to the east of town along the 501 corridor, more so than would have otherwise been the case.	Commercial development is likely to occur at the Junction and the proposed interchange improvements will play an important role. The proliferation of commercial uses at Ridgefield Junction could compromise commercial uses downtown (about half of the panel felt that it would, the other half disagreed). The panel also split over whether or not commercial growth at the Junction would compromise the planned industrial uses.	Over the next 20 years, Ridgefield Junction is likely to be the site of most industrial development in Northern Clark County. The interchange improvement projects will play an important role.	Not addressed

Relative to La Center and Battle Ground, Ridgefield is positioned to be the major location of residential, commercial, and industrial growth over the next 10 to 20 years.

Table 9. Land Use and Economic Impacts – Battleground Interchange Area (SR 502)

Location	Type of Land Use/Impact				
	Residential	**Commercial**	**Industrial**	**Urban Growth Area**	**General (Downtown Battle Ground)**
SR 502 (Battle Ground)					
	There will likely be a substantial increase in residential growth, but the panel split on whether or not the construction of the interchange would play a role in this.	Construction of the interchange would likely bring some level of commercial development, assuming that the area is brought into a UGA, and that services are provided. There will likely be significant pressure to take these actions if the interchange is constructed.	Construction of the interchange may bring a small amount of industrial development, assuming that the area is brought into a UGA, and that services are provided. However, Ridgefield is expected to capture the bulk of industrial interest.	The panel split over whether or not the existing UGA can accommodate likely residential growth. Construction of the interchange is likely to bring pressure for the expansion of someone's UGA (although it is not clear whose).	Unclear whether construction of the interchange will have a positive or negative effect on downtown Battle Ground.

The panel generally agreed that construction of the proposed interchange at SR 502 would create pressure for development around the interchange. However, because of the key role played by Ridgefield Junction, industrial growth was not envisioned within the timeframe of this study. Rather, commercial uses are more likely to be drawn to the interchange area.

6.0 PUBLIC INVOLVEMENT

A public involvement program to facilitate the timely exchange of accurate information to a variety of audiences was established by WSDOT.

The JD White Company, Inc. (TWC) was responsible for coordinating public involvement for the Corridor Study and Route Development Plan. The public involvement program for the study included, but was not limited to, stakeholder interviews; advisory committees; open houses; public information communication tools, including newsletters, mailings, a press briefing, and press releases; community presentations; advisory committees; a web page; and newspaper advertisements.

The following is a summary of the Public Outreach and Involvement Program (the Program) for the project and includes a summary of tasks completed and recommendations for future study support.

Stakeholder Interviews

As part of the Public Outreach and Involvement for the Corridor Study, stakeholders were identified as an important component in determining community issues and concerns regarding the study. The interviews were designed to provide WSDOT with an understanding of the issues that the community believes need to be addressed in the Study.

A list of Stakeholders Interviewed follows, along with Table 5, a summary of the stakeholders' comments.

Stakeholders Interviewed

Clyde Ahl – Vancouver Mall Manager
Ron Bergman – Clark County Public Works
Jerri Bohard – Clark County Planning
Lora Caine – Friends of Clark County
Caren Carlson – Circle C
Marvin Case – *The Reflector*
Liz Cerveny – Mayor of La Center
Bill Crego – City of Battle Ground
Bob Curry-Wilson – Fred Meyer
Steve Dail – Battle Ground Chamber of Commerce
Hal Dengerink – Washington State University
Eric Eisemann – City of Ridgefield
Glenn Ford – Washington State University
Jim Gajkowski – La Center Public Works
Bill Ganley – Mayor of Battle Ground
Brent Grening – Port of Ridgefield
Michael Haggerty – C-TRAN
Paul Haines – City of Battle Ground Public Works
Eric Holmes – City of Battle Ground Planning
John Idsinga – Battle Ground Council Member
John Karpinski – Resident
Tevis Laspa – City of Ridgefield Council Member
Bob Levin – Columbia River Economic Development Council (CREDC)
Brad Lothspeich – Clark County Fire District #6
Gary Lucas – Clark County Sheriff
Dave Mercier – City of Battle Ground Administrator
Betty Sue Morris – Clark County Commissioner
Tom Musser – Clark County Fairgrounds
Martin Overstreet – Resident
Donita Parker – Ridgefield Junction Neighborhood Association President
Richard Phillips – Washington State Patrol
Rudy Podhora – Resident
Dellan Redjou – Hazel Dell / Salmon Creek Business Association
Catherine Rich-Daniels – Vancouver Chamber of Commerce
Deb Wallace – C-TRAN
Betty Wheeler – Resident
Clay Wheeler – Ridgefield Junction Neighborhood Association President

Table 5 is a summary of the stakeholders' comments.

Urban Growth Area and Growth Management Issues	• Identify and understand the relationship between this study and the Growth Management Act.
Freight Mobility and Truck Traffic Issues	• Diminishing ability to move freight through this corridor. • Increasing conflicts between trucks and automobiles.
NW Pioneer Street Interchange	• Battle Ground's economic vitality could be affected by the decision whether to build this new interchange. • Construction of this interchange will relieve congestion at the NE 179th Street and NW Pioneer Street interchanges and on the arterial system.
Connectivity to Local Streets and Effect on Local Transportation Issues	• The study is not only about the freeway, but also affects the local circulation system.
Impacts of the Fairgrounds and New Amphitheater on the Study Corridor	• Traffic impacts on the corridor at NE 179th Street due to the Clark County Fairgrounds and the proposed amphitheater.
Effect of the I-5 Bridge on the Corridor	• Congestion on the I-5 Bridge affects many corridor issues such as freight mobility, congestion, and safety.
The Study Needs to Result in a 50-Year Plan	• WSDOT needs to look well into the future beyond the 20-year planning horizon • Concerned about WSDOT making short-term decisions that are not consistent with long-term needs.
Impacts to the Gee Creek, Salmon Creek, and Whipple Creek Watersheds	• Concerned about these watersheds and drainageways and their connection with the Endangered Species Act.
Drainage	• Concerned about managing the increased stormwater runoff from adding more blacktop in the corridor.
Safety	• As traffic increases in the corridor, safety issues such as congestion and stacking at interchanges, conflicts with truck traffic, emergency vehicle access, and overflow onto local connectors are a concern.

The issues identified in the Stakeholder Interviews were presented to the three Advisory Committees, another component of the Public Involvement Program.

Advisory Committees

Three advisory committees were developed as key components of the public involvement program. The committees were Policy, Technical, and Citizen and Business. These committees helped WSDOT draft the Corridor Strategy by providing input during meetings throughout the plan development process.

The objective of the Policy Advisory Committee (PAC) was to oversee the policy and implementation aspects of the Plan to ensure that the issues and concerns of all the jurisdictions were considered in developing the plan.

The PAC was originally composed of:

- Liz Cerveny, Mayor of La Center
- Bill Ganley, Mayor of Battle Ground
- Tevis Laspa, Ridgefield City Councilman
- Jim Moeller, City of Vancouver Councilmember
- Roy Randall, Port of Ridgefield Commissioner
- Judie Stanton, Clark County Commissioner

Tim Thompson, Mayor of Ridgefield, replaced Councilman Tevis Laspa later in the Study.

The Technical Advisory Committee (TAC) assisted in developing the baseline and existing conditions inventory and the criteria for the alternatives analysis, as well as assessing the environmental impact issues, evaluating the land use and economic impacts, selecting the preferred alternatives, and assisting with the implementation measures for the plan. The TAC was originally composed of:

- Pete Capell, Clark County
- Patrick Green, Columbia River Economic Development Council (CREDC)
- Michael Haggerty, C-TRAN
- Jim Gajkowski, City of La Center
- Brent Grening, Port of Ridgefield
- Paul Haines, City of Battle Ground
- Dean Lookingbill, Regional Transportation Council
- Dellann Redjou, Hazel Dell and Salmon Creek Business Association
- Eric Holmes, City of Battle Ground
- Tom Musser, Clark County Fairgrounds
- Brent Davis, Clark County
- Les Rubstello, WSDOT
- Kevin Wallace, City of Vancouver

The following TAC members replaced original members during the course of the Study:

- Craig Helmann, Regional Transportation Council, replaced Dean Lookingbill
- Matt Ransom, City of Vancouver, replaced Kevin Wallace
- Dean Hergesheimer, Ridgefield Engineer, was added to the committee
- Evan Dust, Clark County, was added to the committee
- CREDC declined to attend meetings, as they had not yet replaced their Executive Director

The Citizen and Business Advisory Committee (CBAC) reviewed the inventory of existing and baseline conditions; provided input on the selection of the baseline conditions, land use, and environmental impacts that were used to compare alternatives; reviewed the findings of the alternatives/critical issues analysis; and, provided input and "on the ground" perspective in the selection of the preferred transportation alternative.

The CBAC was originally composed of:

- Lora Caine, Friends of Clark County
- Hal Dengerink, Washington State University
- Caren Carlson, Circle C
- Catherine Rich-Daniels, Vancouver Chamber Of Commerce
- Gary Bock, Friends of Gee Creek
- Karen Snekvik, Homebuilders Association
- Skip Leuschner, Resident
- Jim O'Horo, Vancouver Bicycle Club
- Martin Overstreet, Resident
- Wendy Coughlin, Pleasant Highlands Representative
- Bruce Wiseman, Port of Ridgefield
- Ed Ryf, Ridgefield Junction
- Jeff Wriston, Clark County Planning Commission
- Gary Adkins, Business Owner and Area Resident

The following CBAC members replaced original members during the course of the Study:

- Lynne Valenter, Washington State University, replaced Hal Dengerink
- Neil Olsen, Homebuilders Association, replaced Karen Snekvik
- Steve Dail, Battle Ground Chamber of Commerce, was added to the team as a Battle Ground representative
- Larry Holzman, Hazel Dell / Salmon Creek Business Association, was added to the team.

The PAC has met five times, and has two additional meetings scheduled. The CBAC and TAC met eight times, with plans for one additional meeting for each group. Meeting notes were taken and provided to WSDOT.

Open Houses

Open Houses were held to create an opportunity for a wide range of interested citizens to learn about the project, provide feedback to the project team, and create a mailing list for future distribution of public involvement materials. To date, the study has held four open houses:

- March 2, 1999 – Washington State University
- March 4, 1999 – Battle Ground High School
- October 9, 1999 – Vancouver Mall
- August 26, 2000 – Westfield Shoppingtown (formerly Vancouver Mall), held in conjunction with the I-205 Corridor Study
- November 29, 2000 – Skyview High School

The following comments and key concerns were relayed at the open houses. Comments specific to the NE 219th Street intersection are listed separately. The comments are unedited.

Public Comments

- We live on the old NE 134th Street (5 houses across from NE 134th Street ramp). We want to know just how we will be affected by this development and when it will be? We have heard about wanting to expand NE 134th Street off-ramp over to 139th Street. How and when will this affect us?
- Interchange on I-205 would relieve some of the congestion at NE 134th Street (Extend NE 99th Street improvement from NE 50th Avenue to I-205).
- Currently, insufficient room for left turns NE 134th Street to southbound Hwy 99.
- Consider closing 20th Avenue from Hwy 99 to NE 134th Street.
- Consider overpass for either Hwy 99 over NE 134th Street or overpass for NE 134th Street over Hwy. 99. This would allow traffic that is not turning to proceed without stopping, and allow more room for turning vehicles.
- Pray for wisdom on the amphitheater project. Developer must be made to invest in fixing infrastructure.
- The issues map displayed at the meeting did not include the traffic needs east of I-5 at NW Pioneer Street. The Tri-Mountain Golf Course uses this as well as many property owners.
- A NE 219th Street interchange would solve all the problems, but a big improvement, I would think could be gained at NE 179th Street. The intersection at NE 179th Street is very bad, big traffic backups in the morning, too many access points so close, the area needs a way to pull traffic away from here.
- How does this study relate to the Clark County Urban Growth Boundary?
- Improvement to NE 179th Street / I-5.

- Improvement to NE 134th Street / I-5 interchanges if it can be done.
- Coming down I-5 south you must take I-205 to get to NE 134th Street.
- Would like to see another interchange between NE 83rd Street and NE 134th Street.
- How about at St. Johns Road?
- Excellent way to outreach to the community - setting up at the mall is a great way to communicate!
- Can I receive info on NE 179th interchange please?
- Are you planning on taking our homes?
- The one at NE 179th is really screwed up.
- Bridge on 139th? Who pays?
- Apparently, we have been intentionally destroying livability in Clark County and Portland. Planning must anticipate needs for roads, buses.
- More lanes more exits (between NE 83rd and NE 134th) and repave 205 N at NE 134th.
- Even though the handouts to the media were apparently explicit, but were very hard to find the location. We aren't all "mall rats." I would like to see a meeting explaining the planned or proposals that are being advanced at your "DOT" meetings by appointed representatives. Hold meetings at pertinent location like Ridgefield Community Center. Also invite specific Associations like Ridgefield School District, Junction Association, La Center Junction Association.
- I would like to receive maps of options on NW Pioneer Street.
- NE 134th option A, NE 179th Option 2. We need to do this stuff now!
- I believe early consideration should be given to the replacement of the 129th Street Bridge over I-5. This would permit the early installation of an acceleration lane for southbound traffic from NE 134th Street, which is entering I-5.
- Presently at rush hour, southbound traffic on I-5 must frequently slow to allow for the merging traffic from the NE 134th Street ramp simply because there is insufficient room for incoming traffic to up to I-5 traffic speed.
- Many others, and myself, are interested in the concurrency issues. The amphitheater is the cause of serious concern and a number of us are wondering if concurrency can be waived and for what reasons.
- NE 179th Street east of I-5 is a dangerous road--Vision-impaired is True! The intersection at NE 72nd Street is potentially dangerous unless it becomes a four-way stop.
- We do not need any HOV lanes but could add lanes that would be used by everyone.
- During the time the fair is on, the traffic off I-5 at the Fairgrounds lines up on I-5 for a mile or more. The residents who live past the Fairgrounds need to use the Ridgefield exit and backtrack to their homes. This is unfair to the people who pay the taxes and have (adjective) people who have never farmed pass rules that are killing off the small farms so that Clark County will eventually be dependent on the foreign market for all their food. We feel that these same types of people (unrealistic) are the ones who allow things like rapid transit and the amphitheater to ruin the way of life that has flourished here. Those two items have tried to be stopped by people who care!!!!!

- Improve NE 179th Street Interchange with larger & safer Park-and-Ride.
- Widen I-5 to three-lane facility--No HOV's.
- Provide traffic light at NE 199th Street and longer left hand turn lane for stacking.
- C-TRAN provides express from Park-and-Rides to Vancouver and Portland. As they do for NE 134th Street.
- When the study is complete, be sure to have land use issues / rezonings addressed.
- Double exit lanes off NE 179th Street both north and south.
- Would an exit at approximately NE 154th Street help with NE 134th Street congestion?
- Be sure to look at impacts to county roads and be ready to help fund improvements.
- Park-and-Ride at NW Pioneer Street Interchange.
- Look at an exit off I-205 at NE 50th Avenue.
- NE 10th Avenue and NE 199th Street very dangerous road and should be considered for some changes. It is very hard to get onto NE 10th Avenue south or north. Possibly a light or stop signs four-way--something needs to be done.
- First comment: Thank you for thinking about this before it becomes a real traffic mess. That seems to be unusual for transportation planners in this area.
- NE 83rd Street Interchange / NE Andresen Road is already a mess and not getting better. A lot of this traffic is trying to get to NE Andresen Road NE 72nd Avenue heading to or from North County Battle Ground area. I suggest off-ramp from northbound I-205 to northbound NE 72nd Avenue, and southbound on-ramp (cloverleaf type) from southbound NE 72nd Avenue (or NE Andresen Road) to southbound I-205. Eliminate all the turns that we currently need to go through.
- Widen I-205 from NE 83rd Street to I-5 to three lanes each direction.
- I-5 / I-205 NE 134th Street Intersection--what a disaster--rebuild it. Think about more direct access from I-205 to WSU campus - alleviate impact on neighborhood.
- Widen I-5 to four lanes each direction from I-205 to at least NE 179th Street, better to NE 219th Street.
- If Q Prime wants amphitheater, let them pay for improvements to NE 179th Street Interchange. They are going to really add traffic congestion with their concerts, and apparently they plan a lot of them each year. During PM rush hour, traffic already backs up to freeway without adding them to the mess. If nothing else is done, build an overpass over NE 179th Street, there's a valley there; so SR 502 traffic doesn't get backed up by NE 179th Street traffic light.
- Put in Park-and-Rides at each interchange, the quicker the bus access to I-5 / I-205, the better.
- Too many lights have ruined NE 134th Street.
- There is a structure going in next to Albertson's that is not on the map and would be affected by one of the alternatives.
- Row houses have been slated to go in on NE 154th and NE 20th Avenue.
- Need to fix roads before they build buildings.

- There should be a study and then relief on commute from Hockinson to downtown (182nd / 172nd / 159th Streets).
- I prefer Option E (NE 134th).
- Neighbors told me that 15th and 22nd would be dead-ended.
- Alternatives shown are at odds with four of the five expert panelists who spoke at the WSDOT Forum. Four panelists said the alternatives would turn I-5 into a commuter road, disallowing commercial traffic. The project team explained that the panel's charge was to address land use impacts and give opinions. The consultants were charged with quantifying traffic impacts. The citizen responded that the no build option does not have enough information to allow it as a viable option. No one reading the information would understand that the alternatives encourage heavy development. The citizen felt that if Battle Ground citizens understood the development impacts they might want to live with a little congestion.

NE 219th Street Interchange

- In reading the key issues (page 2 of update) I noticed that one stakeholder strongly opposes including a new NE 219th Street interchange into the state system. I would hope that engineering considerations (traffic, environment, socio-economic) would prevail over one person's opinions. I have no doubt that the existing and projected traffic volumes along NE 219th Street and NE 10th Avenue would justify an interchange at NE 219th Street.
- Is any coordination being done with the Federal Highway Administration's Olympia office? At what point will they become part of the analysis process? Who at WSDOT will be responsible for the Federal Government?
- Would like to see access to I-5 from NE 219th Street.
- Forget NE 179th Street. Build NE 219th Street Interchange for SR 502.
- We would like to see every effort directed to extending NE 219th Street with proper connections to I-5 both northbound and southbound.
- An interchange at NE 219th Street & I-5 would greatly facilitate traffic flow to and from Battle Ground. An interchange there would avoid the "bottle neck" that happens on south SR 503 and Fourth Plain.
- I strongly recommend that an off-ramp be provided at NE 219th Street and I-5.
- We need an interchange at NE 219th Street and I-5.
- Of the options presented, the NE 219th Street seems to make the best sense. The interchange should feed both east & west.
- NE 219th Street needs to have an intersection at I-5 big time. This would help all transportation from Yacolt, Amboy, View, Fargher Lake, Venersborg, and Battle Ground (which is the fastest growing of all) to have a more direct access to I-5.
- The problem at NE 179th Street would be solved if the interchange at NE 219th Street were in place.
- I am very much in favor of extending SR 502 to tie in with I-5 at NE 219th Street.
- As everyone who has the authority to make the decision knows, NE 219th Street is the most necessary exit from I-5.

- Battle Ground has grown to the point that traffic is beginning to be hazardous--and it will continue to grow.
- Install interchange at NE 219th Street.
- Build Park-and-Ride at NE 219th Street interchange.
- If the amphitheater is going in at the Fairgrounds, then NE 219th Street should be considered for the interchange. Reason: there will be enough traffic to worry about with that alone on NE 179th Street.
- Another point is that we need another Park-and-Ride at NE 219th Street--there is not enough parking at NE 134th Street--something should be considered.
- This one is probably my top priority improvement. Build an interchange at NE 219th Street. This will alleviate traffic at NE 179th Street Interchange, Q Prime can then pay for NE 179th Street improvements, not the taxpayer. When Ridgefield Junction builds up with industry, an interchange at NE 219th Street will take off some of the pressure of the NW Pioneer Street Interchange. Other reasons: People from the rest of Washington can't find Battle Ground because of all the turns, poor signage, and poor roads. This is a hindrance to employment growth in Battle Ground, forcing us to drive to Vancouver and Portland for jobs, thus adding traffic to I-5 / I-205. Battle Ground needs to diversify tax base, can't do with poor I-5 connections now. If NE 219th Street interchange is built, buy access rights from I-5 to Duluth so it doesn't get clogged up like SR 503 in Orchards.
- Can I receive info on NE 219th interchange?
- Option 3 on NE 219th - no - stoplight would just backup on freeway.
- Torn between option 1 and 2 - new in Battle Ground.
- We would like copies of options 1, 2, and 3 on the NE 219th highway freeway exit. Also the plans for the Park-and-Ride locations. Also a copy of the summary report.
- NE 219th option 2. (2 responses identical)

Public Information Communication Tools

Throughout the process, a number of communication tools were used to present key project milestones, inform the public of the progress of the project, and invite participation. The project employed newsletters, mailers, a press briefing, community presentations, a web page, open houses, and newspaper advertisements to inform the public. Advisory committee information packets were also sent out prior to each meeting.

The project introduction newsletter was sent to over 40,000 households in the project area. The study sent out five newsletters. The newsletters updated the public on the project process, as well as inform the public of upcoming opportunities for further information. Newsletters were sent in:

- March 1999
- May 1999
- August 1999
- August 2000
- November 2000

A mailer was sent in December 1999, informing the public of the suspension of the study due to impacts from Initiative 695.

Press briefings were sent out prior to each open house.

A community presentation was done for the Battle Ground Chamber of Commerce.

The project website provides updated information on the study. Meeting schedules, meeting notes, newsletters and other project information is posted on the web page, which is located at *www.i5north.com.*

Newspaper advertisements were placed in *The Columbian* prior to and announcing each open house to inform the public of the upcoming public meeting.

7.0 PLAN CONSISTENCY

Introduction

The purpose of this chapter is to:

1) Provide a discussion of land use policy in relation to the siting of new interstate highway interchanges, such as the proposed interchange at NE 219th Street and Interstate 5 (I-5).

2) Discuss consistency of the corridor improvement recommendations with adopted local and regional plans; and

3) Discuss the consistency of the corridor improvement recommendations with policies of the Washington State Highway System Plan (HSP).

New highway interchanges can have significant impacts on land development patterns. While they can provide better motor vehicle access, if nearby land use patterns are not well planned, the level of service of the intended improvement can be severely diminished by traffic accessing nearby developments.

Policy that seeks to integrate access management and land use is collectively referred to as Interchange Area Management. Effective Interchange Area Management preserves the functional integrity of a roadway system and allows efficient access to and from abutting properties while serving the desired land use objectives of the local community or region. Interchange Area Management policies must be supported through consistent implementation of companion development ordinances that provide standards for orderly land development.

Chapter Organization

This chapter provides an overview of Clark County's existing land use policies and discusses Interchange Area Management policies that the County might consider to provide access to developable land near the interchange, while simultaneously preserving the integrity of the transportation systems, particularly roadways. The chapter begins with a description of Clark County's current land use designations near the proposed NE 219th Street interchange.

To frame the discussion for Clark County, this chapter provides an overview of the regulatory framework under which Clark County plans. Interchange Area Management policies are presented later in this chapter. An analysis of Clark County's policies in the 20-Year Comprehensive Growth Management Plan (Comprehensive Plan) and the 1999 Clark County Transportation Standards (Transportation Standards) related to Interchange Area Management principles are also presented in this section. The purpose of this analysis is to determine which Interchange Area Management policies already exist in Clark County land use and transportation plans and to make suggestions for new/additional polices that could be made to preserve the function of a new interchange facility.

The next section of this chapter summarizes other policies that may impact land use near major transportation facilities, such as I-5 and I-205.

The final sections of this chapter summarize the consistency of the Corridor Improvement Strategy with the Clark County Comprehensive Growth Management Plan, the Metropolitan Transportation Plan, and the Washington State Highway System Plan.

Clark County Land Use Designations

The proposed new interchange at NE 219th Street is located in rural Clark County, between the City of Ridgefield and the City of Vancouver. It is outside the Urban Growth Area (UGA) of both cities. Land use designations surrounding the area are rural and agricultural in nature. Currently the Clark County zoning ordinance does not provide for a use such as transportation facilities on rural or agricultural lands. A conversion from rural agricultural use to a transportation use will require an amendment to county's Comprehensive Plan and a change in zoning. In addition, the kinds of urban land uses and issues that occur at interchanges, and are the subject of the sections which follow, also are not permitted at present at this location. Therefore, the County has the opportunity to introduce best practice interchange management techniques that meet County goals and objectives, stated below, if it so chooses.

The Regulatory Framework

The Washington State Legislature passed the Growth Management Act (GMA) in 1990 to manage growth and development and maintain the state's quality of life. GMA (RCW 36.70A) mandates that counties and cities that have a population of more than 50,000, or have experienced a population increase greater than 10% in the previous 10 years, adopt comprehensive land use plans and development regulations.

In December 1994, Clark County adopted its 20-Year Comprehensive Growth Management Plan (Comprehensive Plan). The county's Comprehensive Plan establishes Urban Growth Boundaries around each of the county's existing cities and encourages growth within those areas in order to:

- Prevent sprawl and conserve rural lands, environmentally sensitive lands, and natural resources;
- Focus development in urban areas where public facilities can be provided efficiently and cost-effectively; and
- Preserve opportunities for farming and forestry.

Periodic review of the county Comprehensive Plan is currently underway. In addition to county Comprehensive Plan review, each city in the county is revisiting its own Comprehensive Plan. Although the cities develop plans for their own areas, they must also be consistent with countywide planning policies. Individual city Comprehensive Plans becomes the basis for the Community Framework Plan, part of the County Comprehensive Plan, which is the long-term vision for Clark County. The purpose of the Framework Plan is to establish consensus about which lands will eventually be committed to urban uses and which should remain rural. Clark County plans to complete its Comprehensive Plan update by December 2001.

The Planning Process

An Urban Growth Boundary (UGB) is a line that demarcates the projected population growth area around a city. The land inside the boundary, including the area within the city, is called an urban growth area, or UGA. UGAs are required by GMA to contain enough vacant land to accommodate all of the population growth projected by the state's Office of Financial Management (OFM) over the next 20 years. The intent of the UGA is to provide and plan for efficient provision of government services and shield rural resource lands from intensive urban development.

To determine if enough land exists inside the UGA to accommodate 20 years of growth, Clark County will adopt a 20-year population projection from a range of choices provided by the OFM. Based on the growth management population projections for Clark County made by the state, each city within the county will examine the amount of available land within their respective UGA to determine if a 20-year supply of land is available. Under Clark County's Plan, UGBs can be moved once every 5 years during a comprehensive plan review, but only if development has occurred on 75% of buildable residential or commercial land, or on 50% of buildable industrial land.

As part of the Comprehensive Plan review process, OFM provided Clark County with a low, medium, and high population forecast for the upcoming time period. Clark County selected the highest OFM projection as the basis for its 1994 comprehensive plan. However, even the highest population forecast was found to be low by 3.6%. By the year 2012, OFM now estimates that Clark County will have a total of 416,000 people, including a rural population outside city UGBs of almost 80,000. For the current Comprehensive Plan update, Clark County staff have recommended using the median population figure as the basis for estimating population growth in the Clark County Comprehensive Plan update because the OFM predicts a slow down in county population growth.

Interchange Area Management

Effective management of land use near transportation facilities such as interchanges is usually accomplished through the implementation of a combination of land use and transportation polices. A literature review of published information indicted that Interchange Area Management is usually accomplished through a variety of access management, corridor preservation, and transportation and land use policies. The literature review revealed four general categories of principles that are considered essential in managing land use near major transportation facilities. These principles are presented below.

Following the discussion of each principle is an analysis of the Clark County 20-Year Comprehensive Growth Management Plan and the 1999 Clark County Transportation Standards, the two existing plans that guide land use and transportation planning in Clark County. The intent of the local plan review was to determine if Clark County has implemented polices related to Interchange Area Management.

General Principles:

1. Integrate Land Use and Transportation Policy in the Comprehensive Plan

The Clark County Comprehensive Plan includes several broad polices that could be expanded to support Interchange Area Management. The Comprehensive Plan is implemented through a series of countywide and framework plan polices. Chapter 1, of the Framework Plan, focuses growth in centers, urban and rural. While the Framework Plan polices do not include a vision of how growth centers are connected, a primary goal of the Framework Plan is to "provide housing in close proximity to jobs resulting in shorter vehicle trips, and allowing densities along public transit corridors that support high-capacity transit, either bus or light rail."

Chapter 1 of the Community Framework Plan includes 13 general polices which correspond to each element of the county's Comprehensive Plan. Policy Element 5 relates to the Transportation Element of the Comprehensive Plan and contains the following policies relating to Interchange Area Management.

5.1 County-wide Planning Policies:

(a) "The State, Metropolitan Planning Organization (MPO) and the Regional Transportation Planning Organizations (RTPO), the county, and the municipalities shall adequately assess the impacts of regional transportation facilities to maximize the benefits to the region and local communities."

(b) "The State, MPO / RTPO, county, and the municipalities shall strive, through transportation system management strategies, to optimize the use of and maintain existing roads to minimize the construction costs and impact associated with roadway facility expansion."

(c) "The county, local municipalities, and MPO / RTPO shall, to the greatest extent possible, establish consistent roadway standards, level of service standards and methodologies, and functional classification schemes to ensure consistency throughout the region."

(d) "The State, county, MPO / RTPO, and local municipalities shall work cooperatively to consider the development of transportation corridors for high-capacity transit and adjacent land uses that support such facilities."

5.2 Framework Plan Policies

5.2.0 "The regional land use planning structure is to be integrated within a larger public transportation network (e.g., transit corridors, commercial nodes, etc.)."

5.2.5 "Establish residential, commercial, and industrial development standards including road and parking standards, to support the use of alternative transportation modes."

5.2.6 "Establish connections between Urban and Rural Centers through a variety of transportation options."

5.2.8 "Encourage a balanced transportation system that can be maintained at acceptable levels of service."

5.2.9 "Establish major inter-modal transportation corridors that preserve mobility for interstate commerce and freight movement (promote inter-modal connections to port, rail, truck, bus, and air transportation facilities; and preserve and improve linkages between the Port of Vancouver and other regional transportation systems)."

Chapter 4 of the county's Comprehensive Plan, the Rural and Natural Resource Element, includes provisions for lands that are not reserved for agriculture, forest, or mineral resources, and are not designated for urban development. Most of the lands near I-5 are designated as rural. Polices that support Interchange Area Management include:

4.1 County-wide Planning Policies

(e) "The county shall recognize existing development and provide lands that allow rural development in areas that are developed or committed to development of a rural character."

4.2 Framework Plan Policies

4.2.2 “Commercial development of appropriate scale for rural areas is encouraged within rural centers.”

4.2.3 “Establish large lot minimums for residential development appropriate to maintain the character of the rural area.”

4.2.4 “Develop a program for the transfer or purchase of development rights (TDR) or similar programs to encourage implementation of these rural lands policies.”

4.2.6 “Encourage the clustering of new development within a destination resort or a designated rural center (village or hamlet). All new development should be of a scale consistent with the existing rural character.”

2. Adopt A Vision Such As A “Gateway” For Transportation Corridors Leading To and Running Through Nearby Communities.

Gateways function as an introduction to the community. Gateways can be as unique as the community itself, ranging from the use of historical markers, to tree-lined roads that lead into the community.

While the Clark County Comprehensive Plan does not contain specific policies that support the Gateway concept, the 1999 Clark County Transportation Standards (Transportation Standards) does. The Transportation Standards are intended to provide consistency between transportation policy and the Clark County Comprehensive Plan. The Transportation Standards are referenced as Chapter 12.05 of the Clark County Code and were adopted on May 25, 1999. Transportation Standards establish access and design criteria for public and private roads constructed or improved as a condition of county approval of land development which include a special designation for Scenic Routes. Scenic Routes are defined as “roadways with unique scenic or historical features, officially designated by the Board of County Commissioners.” Clark County’s goal for Scenic Routes is to enhance, preserve, and facilitate the enjoyment of those scenic or historical features unique to each route. Scenic Route design may include reduced design speed and modified roadway and right of-way widths to preserve naturally occurring scenic beauty unique to the particular route. The Scenic Route designation could be modified to address the “Gateway” concept.

3. Include Goals, Objectives, and Policies Relating To Interchange Area Management in the Comprehensive Plan.

Interchange Area Management requires careful coordination of land use and transportation goals and objectives. Local regulations should address the interdependence of land division and access, and integrate access management principles through planning and regulatory programs.

Chapter 3 of the Comprehensive Plan, the Transportation Element, adopts by reference the Salmon Creek / Fairgrounds Regional Road Plan. This plan contains polices which appear to support improving and managing access in that area. However, these polices apply only to this specific location.

The Comprehensive Plan is supported by the Clark County Zoning Ordinance, which includes a Rural Cluster Development Ordinance (Chapter 18.303B). The purpose of this ordinance is “to provide for small lot residential development in the rural zoning districts which maintain rural

character, maintain and conserve larger parcels, protect and/or enhance sensitive environmental and wildlife habitat areas, and minimize impacts to necessary public services."

One benefit of Cluster Development ordinances is that they often include guidelines for limiting and controlling access to nearby roadways, thereby controlling the flow of traffic. However, Clark County's Rural Cluster Ordinance applies only to residential lands and does not include property access provisions along arterials and collectors such as internal access roads. Though it does not appear to support Interchange Area Management polices, the ordinance could be modified to include related Interchange Area Management polices.

Clark County's Transportation Standards guidelines relating to Interchange Area Management are limited to standards for driveway design, location, and spacing.

4. Classify Local Roadways According To Function and Desired Levels of Access Control and Designate These Areas in the Comprehensive Plan.

WSDOT's Access Control Classification System and Standards are defined by Washington Administrative Code (WAC) Chapter 468.52, which contains standards for access to the state highway system. Both SR 501 and SR 502 are governed by these regulations and have access management classifications ranging from Class 3 to Class 5 for different segments within the Study area. Design guidelines for direct access and spacing of intersecting streets is prescribed in the code. However, accompanying land use designations near these facilities are not addressed in the WAC.

Chapter 3, the Transportation Element of the county's Comprehensive Plan references a functional classification system and establishes goals for Level of Service (LOS) on county roads. It also includes polices relating to travel demand such as trip reduction, transit, and the encouragement of multi-modal transportation systems.

Clark County's Transportation Standards also include a functional classification system for county roads. These roads consist mainly of State Route 502, Rural Major Collectors, and NE 179th Street, a Rural Major Collector that becomes a Principle Arterial before entering Vancouver's Urban Growth Area (UGA) and crossing I-5 to the east.

According to the Transportation Standards, the purpose of a Principle Arterial is to "move high volumes of traffic speedily across and between subareas of the county or region." Access is generally limited to intersections with other arterials and collectors. Direct land access is minimal and controlled. Rural Major collectors "serve towns and activity centers on state arterial routes." Their primary purpose is to link activity centers with larger towns nearby and connect them to state arterial routes. Land access is "subordinate to that of traffic movement."

5. Implement an Interchange Area Management Plan and Interchange Overlay Zone.

An Interchange Area Management Plan identifies the appropriate access system around the interchange area, in accordance with a desired land development plan. Such a plan also includes minimum spacing requirements for access to roads near interchanges.

Use of overlay zones to implement an Interchange Area Management Plan is an effective method of managing access along major road corridors. An overlay zone adds a set of requirements to those of an existing zoning district within a specific area. This technique can be applied to major thoroughfares or portions of major thoroughfares under state or local jurisdiction that are not already extensively subdivided and are not planned for commercial or intensive

development in the near future. Similar techniques can be applied for corridors that are not currently zoned for commercial or mixed use development and may already be experiencing development pressure. The idea is to focus, rather than disperse development along corridors while maintaining regional mobility through interchange area management. The overlay zone may "freeze" allowable access to one connection by right per existing lot or parcel at the time of adoption. Lots or parcels may be extensively subdivided, but all future lots must obtain access via the connections permitted at the time of overlay adoption.

Clark County's Transportation Standards could be expanded to provide specific classification for segments of roads near interchanges in the interest of promoting effective management of the highway system and extending capacity. An Interchange Overlay Zone would provide consistency for nearby land uses. Sample policies to support the zone might include:

1. New interchanges or significant modification of an existing interchange will be subject to special access management requirements to protect the safety and operational efficiency of the limited access facility and the interchange area, pursuant to the preparation and adoption of an access management plan. The plan shall address current and future connections and median openings within _____ mile(s) of an interchange area (measured from the end of the taper of the ramp furthest from the interchange) or up to the first intersection with an arterial road, whichever is less.

2. The distance to the first connection shall be at least ____ feet where the posted speed limit is greater than ____mph or ____ feet where the posted speed limit is ____ mph or less. This distance shall be measured from the end of the taper for that quadrant of the interchange.

3. The minimum distance to the first median opening or access connection shall be at least _____ feet as measured from the end of the taper of the egress ramp.

4. The minimum lot frontage for all parcels with frontage on (name affected segments of thoroughfares here or refer to a list) shall not be less than the minimum connection spacing standards of that thoroughfare, except as otherwise provided in this section. Flag lots shall not be permitted direct access to the thoroughfare and interior parcels shall be required to obtain access via a public or private access road in accordance with the requirements of this Code.

Other Policies Relating to Interchange Area Management in Clark County

Concurrency

Concurrency is a tool that the State of Washington has implemented to ensure development approval decisions occur in combination with sufficient public facilities, such as sewer, water, and roads. The Concurrency provisions under WAC 365-195-NE 835 states that "each jurisdiction should implement a regulation or series of regulations which ensure public facilities have adequate capacity to accommodate a proposed development." In addition, RCW 36.70A.070 mandates that after adoption of the Comprehensive Plan, local jurisdictions must adopt and enforce ordinances which prohibit development approval if the development causes the level of service on a locally owned transportation facility to decline below the standards adopted in the transportation element of the jurisdictions comprehensive plan, unless transportation improvements or strategies to accommodate the impacts of development are made concurrent with the development.

Before a new development is approved in Clark County, concurrency requires that the public infrastructure needed to serve it (e.g., road capacity) exists, or will be in place within three years. In this way, concurrency provides the link between the county's land use and capital improvement plans. Clark County recently amended its Concurrency Ordinance (CCC12.41). Revisions to the ordinance focus on changes in measuring concurrency from individual traffic intersection delays, to transportation corridor travel speeds. This method of concurrency measurement is already in use by the City of Vancouver. Certain exemptions from concurrency approval and review were also adopted, exempting K-12 schools, fire and police stations, and public transit faculties from regulation under this ordinance.

The revised ordinance requires a traffic impact study for all developments unless development is exempt, or generates less than 10 peak hour trips. If a development generates less than 10 peak hour trips and a traffic impact study is not required, the development is still subject to Concurrency reviews and will require Concurrency approvals.

Clark County's Concurrency Ordinance applies when land use development that has a potential vehicle impact on the level of service of a segment or intersection of any County arterial or collector roadway or any Highway of Regional Significance. Because the ordinance applies to roadways near I-5, such as SR 502 and NE 179th Street, and is triggered by development, the ordinance could be considered a method of Interchange Area Management. However, the ordinance is not supported by land use regulations that provide for efficient land use planning near interchange areas. Without a method of providing for orderly land development, conversion of undeveloped land may result in negative impacts to nearby transportation facilities. Impacts may include a reduction in level of service of the interchange.

House Bill 1487, State of Washington

Adopted in March of 1998, Washington State House Bill (HB) 1487 declared transportation facilities such as the interstate highway system and interregional state principle highways "transportation facilities and services to be of statewide significance." This bill gives WSDOT, in cooperation with regional transportation planning organizations including cities and counties, the authority to plan for improvements to transportation facilities and services and set Level of Service (LOS) standards.

The intent of HB 1487, in part, was to include highways of statewide significance in local road inventories. Though largely untested because the bill was passed in 1998, the bill could have an impact on Interchange Area Management in Clark County. Essentially, in areas where state and county jurisdictions meet such as the northbound I-5 off ramp at NE 134th Street, County concurrency standards do not apply. The County cannot impose concurrency, or a development moratorium due to failing levels of service, because the intersection is not within the county's jurisdiction. Although the county cannot deny land development in these areas due to level of service failures, Washington State Environmental Policy Act (SEPA) reviews still apply. Developments are still being denied on other bases – such as safety (exacerbating a high-accident condition), endangered species, etc.

If the county cannot impose concurrency on state facilities, the use of Interchange Area Management policy and consistent implementation through development ordinances is the only method of providing for the protection of level of service of transportation facilities.

Consistency with Local and Regional Plans

Both the Clark County Comprehensive Growth Management Plan and the Metropolitan Transportation Plan contain goals and policies which encourage multimodal transportation systems and linkages between land use and transportation. The previous section focused on the Land Use component of the Clark County Comprehensive Plan; this section will focus on the transportation component of the Comprehensive Plan as well as the Metropolitan Transportation Plan (MTP) administered by the Regional Transportation Council.

Providing for new capacity and improved access to Park-and-Rides, such as the Salmon Creek Park-and-Ride, the 179th Street/Fairgrounds Park-and-Ride, and a proposed Park-and-Ride at the 219th Street/SR 502 interchange, as well as design provisions for bicycle and pedestrian facilities are all consistent with local and regional planning policies.

While the proposed I-5/NE 219th Street interchange is included in Clark County's Arterial Atlas (the road component of the Comprehensive Plan), provisions for capital facilities funding, planning for intersecting transportation facilities, and land use planning do not address the new interchange. Planning and right-of-way acquisition for the proposed new interchange are contained in the MTP as a regional priority project.

The proposed extension westward to Hillhurst Road, which this study recommends as a "Post-2020" consideration, is not contained in Clark County's Comprehensive Plan and may be inconsistent with the plan, as it would provide a significant east-west rural arterial through rural zoned land, and at least through 2020 is not needed for traffic capacity.

The recommendation not to pursue a new I-205 interchange at 50th Avenue is consistent with the Comprehensive and Metropolitan Transportation Plans.

The set of interchange improvement alternatives at the I-5/I-205/134th Street interchange is consistent with local and regional plans. The provision for HOV-only ramps to and from a new 139th Street crossing is consistent with MTP policies and would likely be consistent with the comprehensive plan should the new crossing be added to the plan.

The recommended new 139th Street crossing of I-5 is not currently contained in Clark County's Comprehensive Plan. No funding has yet been identified for this crossing, and the county may not amend the comprehensive plan to show this project until its funding can be assured.

The recommended NE 154th Street crossing of I-5 is contained in the county's comprehensive plan.

The recommended design alternative for the 179th Street interchange is different than what was contained in the Salmon Creek/Fairgrounds Regional Road Plan, adopted as a comprehensive plan amendment in 1997. However, the comprehensive plan does not adopt project designs but instead adopts the need for improvements. The proposed improvements, then, are consistent with the comprehensive plan.

Interchange improvements at the Pioneer/SR 501 interchange are consistent with the comprehensive plan and the MTP. The proposed local crossing at NE 259th Street is not currently contained in any local comprehensive plan; it would require adoption by Clark County and the City of Ridgefield into their comprehensive plans. It is likely that a proposed eastward

extension of NE 259th Street to NE 10th Avenue would not be consistent with the Clark County Comprehensive Plan as it would provide significant capacity in the rural area.

Proposed improvements to the La Center Road/NW 319th Street interchange are likely to be consistent with local and regional plans.

Consistency with the Highway System Plan

Improvement alternatives were evaluated using several criteria, including benefit/cost ratio. This is consistent with the HSP process. Recommended improvement alternatives were required to have high b/c ratios.

The HSP requires that solutions to traffic congestion emphasize multiple modes, encourage carpooling and mass transit, improving efficiency, take into consideration land use alternatives to manage growth in suburban fringe areas, and provide for strategic investment of mobility funds.

As stated above, the recommended corridor improvements include considerations for high occupancy vehicle (HOV) lane access, transit access via Park-and-Rides, bicycle lanes, and pedestrian facilities. The Southwest Region's Intelligent Transportation System (ITS) plan, as well as the Vancouver Area Smart Trek (VAST), are components of this study which are intended to improve efficiency of the system. Additionally, the improvements recommended in this study have been reviewed for their impact on land use, and the ability of these improvements to support adopted land use plans, rather than the propose changes to land use plans.

Finally, both I-5 and I-205 are recognized as Interstate facilities and also their importance on regional, interstate, and international travel and commerce. Thus, mainline and interchange improvements have been recommended which maintain or improve the integrity of these facilities.

Literature Cited

1. Williams, K. and R. Marshall. 1994. *Model Land Development Regulations that Support Access Management.* Center for Urban Transportation Research.
2. Williams, K., and R. Forrester. 1996. *Managing Corridor Development*. Center for Urban Transportation Research.
3. Transportation Research Board. 1998. NCHRP Synthesis 233: Land Development Regulations that Promote Access Management. Washington, D.C.
4. Center for Urban Transportation Research. 1998. *Managing Corridor Development, a Municipal Handbook*
5. Clark County Department of Community Development. Clark County Plan Monitoring Report (1995-1999).
6. Evan Dust, Senior Transportation Planner, Clark County. October 17, 2000. Memo re: Long-Range Planning.
7. Kevin Snyder, Senior Planner, City of Battle Ground. October 2000. Personal communication.

8.0 FUNDING AND IMPLEMENTATION

Overview

The level of state and federal funding available for major high cost interstate highway projects such as those identified in this report has declined significantly since the original Interstate system was constructed. First, federal and state gas tax revenues have declined in real terms (after adjustment for inflation) due to lower real tax rates and lower fuel consumption per vehicle due to the use of more fuel-efficient vehicles. Second, a significant percentage of revenues formerly available for highway projects has now been transferred to other modes of transportation. More recently, Initiative 695, which eliminated Washington's Motor Vehicle Excise Tax, reduced the State Department of Transportation's revenues by over 30 percent. Nevertheless, a variety of funding sources may be available to fund the recommended transportation improvements over the next 20 years. These funding sources include federal, state, local, and private funds. Different funding sources have varying levels of demand on them, as well as restrictions and availability of funds. Some sources, such as traffic impact fees, require incoming receipts to be spent within a certain timeframe (6 years, in the case of Traffic Impact Fees (TIF)), or they are returned to the payer.

Table 7 is a summary of the available short-term funding sources. Each of these funding sources is explained in more detail below. Table 8 gives a 20-year funding outlook for the various recommended improvements under the described funding sources.

Federal

Federal funding is authorized under the federal transportation act, currently known as the Transportation Equity Act for the 21st Century (TEA-21). A new authorization period begins every 6 years and the "rules" often change. The majority of federal funding is allocated to the state by an allocation formula contained in TEA-21. Most of these funds are distributed through a variety of funding categories which have been established to achieve different objectives. A much smaller amount of additional (discretionary) federal funding is available outside the formula allocation. Most of these funds are "earmarked" by Congress. A smaller amount of funds is available through competitive processes in which projects are prioritized and selected on the basis of how well the projects meet certain published criteria. All use of federal funding must be consistent with federal regulations, including achievement of planning and air quality goals.

Federal funding is primarily made available through three methods:

- Congressional Earmarking: Projects funded under this method are known as "High Priority Projects." These tend to be projects that have local political support and identified champions.

- Formula allocation.

- Competitive Process: Both the federal (FHWA, FTA) and state of Washington governments have competitive federal funding programs. The federal programs include the Corridors and Borders Program, the Intelligent Transportation System program, the Transportation and Community System Preservation Program (TCSP), and Section 5309 transit programs. Funding is available on a periodic basis.

The State of Washington competitively ranks projects to receive funding in several categories: Surface Transportation Program (STP) funds, which are distributed by the Transportation Improvement Board; Safety/Hazard Elimination funds, which are distributed by WSDOT; Bridge Replacement and Rehabilitation (BR) funds, which are distributed by the Bridge Replacement Advisory Committee; and Enhancement funds, which are ranked by the Transportation Improvement Board and awarded by the State legislature.

Regional Programming: The Regional Transportation Council is responsible for prioritizing regional STP, Congestion Mitigation and Air Quality, and FTA Section 5309 funds, and makes recommendations on National Highway System funds.

State

The Washington State Gas Tax fund apportions gas tax revenue to a variety of programs. There are direct formula apportionments to cities and counties, a portion dedicated to WSDOT, and a portion dedicated to the Transportation Improvement Board. User fees are also distributed to these various recipients.

Several state entities also provide funding for transportation projects. These entities are described in greater detail below.

WSDOT

WSDOT's funds are programmed by the Washington Transportation Commission according to priority program criteria. The WSDOT budget requires legislative approval. WSDOT programs funds in the following priority order:

Maintenance, preservation, and safety are the highest priorities and are funded first. Mobility projects are next, with "core HOV" system improvements being considered the highest mobility priority.

A low percentage of mobility needs are funded. Typically, the Southwest WSDOT Region receives 10% of the State's allocation for Mobility projects unless specific line-item projects appear in the legislative budget. In the 1999 – 2000 biennium, the SW Region received approximately $48 million of the $479 million programmed statewide.

WSDOT safety and mobility projects are ranked by category, using a benefit-to-cost (b/c) formula. Maintenance and preservation projects are programmed using management systems (pavement and bridge).

Benefits are those realized by building the project, based on the category in which it is programmed. For example, in the safety category, only accident reduction benefits can be included in the b/c calculation. For mobility projects, accident reduction and congestion relief benefits can be factored in.

Cost in the b/c formula is the "cost to WSDOT", namely, the amount of WSDOT funding to be used for the project. If a funding partner other than WSDOT, or grant funding, is included, the "cost to SWDOT" then would be reduced and thus, the b/c ratio increases.

Each WSDOT region generates its list of projects, and corresponding b/c ratio, and these projects then compete statewide for available funding, by category. WSDOT will be reprioritizing projects in several categories in 2001.

Legislative Budget

The State Legislature adopts the WSDOT budget as part of the biennial state budget approval. Through this process, they have discretion to include projects that they consider to have a need for funding.

Because Initiative 695 reduced statewide transportation funds by almost 30 percent, a list of projects approved by a statewide referendum in 1998 (Referendum 49) will not be completed as originally scheduled. A new biennial budget, approved in 2000, factored in the effects of I-695.

In the Southwest WSDOT Region, large projects, defined as those with total costs of over $20 million, are funded in this biennium as line item projects in the state budget. These include: I-5 widening between Main Street and NE 99th Street; 192nd Avenue at SR 14 interchange; and SR 500 at Thurston Way interchange (which is a safety improvement project). Unless a local option tax or a special statewide referendum passes the voters, it is likely that, in the future, major projects such as interchange reconstruction, new interchanges, and mainline improvements, will be funded by legislative action rather than through the local, regional, or statewide competitive grant process.

Transportation Improvement Board

The Transportation Improvement Board (TIB) consists of appointed geographical, modal, and trade representatives who are charged with approving programs where projects are competitively ranked. The TIB has several categories of funding available (see Table 4). Cities and counties are eligible to apply for these funds; WSDOT, transit agencies, and ports are ineligible except for STP (federal) statewide competitive funds.

Significant recent TIB-funded projects in the study area include I-5 at NE 179th widening, SR 502 widening in Battle Ground, and the I-5 at NE 99th Street interchange.

For the most part, successful TIB grant applications are for projects that have multimodal elements, multiple funding partners, public-private funding partnerships (traffic impact fees are considered private funds), and a high local match (30 percent or more of the total project cost). TIB grant applications are also ranked according to accident history, congestion levels, substandard geometrics, and economic development needs (such as a moratorium or a concurrency issue).

Other State Programs

Other statewide programs include the County Road Administration Board (for rural Clark County arterials), Rural Mobility Program (through WSDOT, typically for rural transit programs), Student Pedestrian Safety Program (restitution payments from oil companies as part of a settlement for overcharging of gas prices), Traffic Safety Commission (for small safety projects and educational programs), and other special programs that periodically occur. At this time, it is uncertain if any funds from the cigarette company litigation settlement will be allocated to transportation programs.

Local

County

A portion of the state gas tax, as well as a portion of the county property tax assessments, are dedicated to the Clark County Road Fund. These funds are programmed by Clark County for a variety of programs and projects, including safety, congestion relief, walkways, and bikeways. Maintenance and administration are "off the top" expenditures, with remaining funds available for improvement projects. Approximately $5 million per year are available for improvement projects. Significant County-funded projects in the study area include I-5 at NE 179th Street (a portion of the local match for the TIB-funded project mentioned above), NE 10th Avenue, NE 219th Street to Carty Road (including a joint County/WSDOT improvement project at the NE 219th Street/SR 502/NE 10th Avenue intersection), and NE 134th Street improvements from NW 11th Avenue to WSU (several projects, with County Road Funds providing matching funds).

Cities

Some gas tax receipts are apportioned to cities for their street funds. Typically, these are used for small improvements and maintenance. Cities tend to allocate additional general fund revenues to transportation projects, but these must compete with other general fund activities and projects during each budget cycle. Large, multimillion-dollar projects, such as new arterials or interchange improvements, are rarely built by smaller cities unless they are funded through matching funds to a grant or are bonded.

Latecomers Reimbursement

A change in state law in 1998 allowed counties (and later cities) to enact ordinances that enable the government to recover part of the cost of building a transportation improvement from development that later occurs and benefits by having the improvement in place. For example, if the County were to widen a corridor that included some undeveloped land, and if the road standards in effect were to have required that development to provide those improvements along their frontage when the development occurs, then the county can create a latecomers' reimbursement area and recover a proportionate share of the project cost when the property is developed. Clark County was the first jurisdiction in the state to pass a latecomers' reimbursement ordinance under this new law.

Private

Traffic Impact Fees

Washington's Growth Management Act enabled local governments to assess new development for their proportionate share to provide additional capacity needed to serve growth. This assessment is called the "Traffic Impact Fee" program, and is, simply put, the 20-year cost of capital transportation (road) improvements divided by the growth in trip generation over a 20-year period. By case law and statute, not all of the expense to build 20-years' worth of capacity can be charged solely to private development, nor is it cost-effective to do so, as it is assumed that there is some public benefit realized by having those facilities in place. For these reasons, each jurisdiction's TIF program assumes a certain level of grant funding, as well as locally supplied public funding. Clark County, Battle Ground, and Ridgefield assess TIFs. La Center has considered it in the past but currently does not assess TIFs to new development. Future improvements to NW La Center Road from I-5 to La Center could be funded using TIFs.

A significant impediment to collecting TIFs for large projects is that, by state law, each TIF dollar must be spent within 6 years of its receipt or returned to the payer with "interest of judgment" (approximately 12 percent per year interest). Consequently, it is a significant burden, and a risk, to collect several million dollars toward an interchange improvement, as it is unlikely the cost of a full interchange project can be collected and spent within 6 years. However, the County has programmed matching funds for some interchange projects, including I-5 at NE 99th Street, I-5 at NE 134th Street, and I-5 at NE 179th Street.

Developer Contributions to Mitigation Projects

By case law, governments cannot force developers to pay for mitigation projects. However, under the concurrency law, developers can voluntarily pay for mitigation project(s) if they do not want to wait for the local government to build the project, and if they want to gain development approval.

Recent examples of developer mitigation projects include: I-5 at NE 179th Street (some developer contributions to the project), the "Pipeline" development consortium improvements in East County and Sifton, and some developer contributions toward improvements at the I-5/ NW Pioneer Street interchange that have yet to be programmed.

Implementation

It is difficult to predict precisely how, when, and by whom projects will be funded outside of the 6-year programming window. Priorities for one agency may not be the same for another agency. This report does not dictate funding partnerships; rather, it offers a 20-year funding outlook and outlines the potential for different funding sources to provide financial input for specific corridor improvements.

Order of Improvements

While funding priorities cannot be identified at this time until the agencies have worked the I-5/ I-205 North Corridor Strategies into their local programming functions, a list chronologically ordered by need (weighted by safety and congestion relief/level-of-service) can be developed. This snapshot results in the highest need priority being the short-term improvement list described in the next section. Short-term improvements respond to current high-accident locations, current or near-term level-of-service problems, and other safety improvement or congestion relief that is projected to be needed within the next six years. Long-term needs require more regional discussions regarding funding availability, partnerships, and funding strategies.

Short-Term Improvements

Short-term improvements are defined as those likely to occur within the next 10 years. The following short-term improvements are recommended in the corridor. These are improvements that are likely to be needed based on current or projected short-term (within 6-year) conditions. See the *I-5/I-205 North Corridor Study Baseline Conditions Report* (May 1999) for a detailed description of current and 20-year No-Build conditions. See also Figures 3 and 4, which show current and future system deficiencies.

The following locations are projected to require short-term improvements. Please note that in some instances, short-term improvements may be a phase of a larger, 20-year improvement.

- I-5 at NE 134th Street interchange: currently at LOS D; 20-year No-Build at LOS F; 10-year projection, LOS E
- I-5 at NE 179th Street interchange (with amphitheater construction and with no NE 219th Street interchange): currently LOS D; 20-year No-Build LOS F; 10-year projection, LOS E/F
- I-5 at NW Pioneer Street/SR 501/NW Pioneer Street: will reach LOS E upon buildout of recent development approvals; 10-year projection, LOS F
- I-5 Mainline, NE 179th Street to I-205: component of the high-accident corridor
- I-5 and I-205, Intelligent Transportation System: ITS improvements to be implemented as part of the Vancouver Area Smart Trek (VAST) program.

Long-Term Improvements

In a 20-year outlook, there are a variety of influences on how much of the corridor improvement recommendations can reasonably be funded and built. It is not possible to predict whether future state revenues will increase or decrease. On the one hand, the state legislature may increase revenues from new funding sources as a result of recommendations stemming from the Blue Ribbon Commission. On the other hand, additional initiatives that further reduce transportation revenues are very possible. It is most likely that funding for long term improvements in SW Washington will be even more constrained than in the past for the following reasons:

- Funding Shortfalls: the Washington Transportation Plan, the Metropolitan Transportation Plan for Clark County, and until recently the Clark County Comprehensive Growth Management Plan all identified statewide and regional funding shortfalls. When taken into a 20-year context, the cost of improvements needs exceeds the availability of funds over 20-years, under current funding resources.
- Tax limitation or rollback initiatives: I-695 set vehicle license tabs at $30 ($33 in Clark County due to a local option tax initiated prior to I-695) and removed the Motor Vehicle Excise Tax (MVET), which funded mass transit and other transportation improvements. Although this has caused a short-term effect on transportation revenues, it is difficult to predict what will occur over 20 years. In Colorado, for example, a tax rollback called the "Tabor Amendment" to the state constitution was overwhelmingly passed in 1994, rolling back property assessments (and limiting property taxes), causing a significant reduction in general fund revenues, some of which went to transportation. Less than five years later, the Denver, Colorado urban area voted in a large local option sales tax that is funding over 1 billion dollars' worth of light rail and freeway improvements in the Denver area.
- A greater proportion of remaining transportation revenues need to be used to support non-state highway projects (ferries, public transit, city & county roads).
- Bonding of new projects in the last legislative session has added XX million of new debt service to pay for the projects and reduces current revenues by the same amount to fund new improvement projects.
- Several initiatives passed in November 2000 that obligate a larger share of the states general fund to education, leaving less general fund money available for transportation projects.
- Inflation: numerous studies and reports have indicated over the past twenty years that gas taxes have not kept pace with inflation. This trend is expected to continue in the next 20 years. Thus, even though gas tax fund revenues may have increased over that time, the cost of projects is projected to increase at a never faster pace, resulting in less "buying power" for improvements.

- Priorities: many programs, including certain transportation programs, are funded out of the state's general fund. Locally, cities tend to fund transportation improvements (or finance bonds) out of the general fund. As demands increase for limited general funds, the ability of transportation to compete with schools, parks, law enforcement, and emergency services becomes more difficult.

Table 10 is a 20-year funding outlook for corridor improvements. It is not intended to dictate funding partnerships nor predict that these are the best funding strategies for the corridor. It is based on likelihood of certain funding programs to fund specific improvements. This likelihood is based on past trends, funding availability, and proportional agency shares of benefits.

TABLE 10 SHORT-TERM IMPROVEMENTS			
Location	***Improvement***	***Possible Funding Partners***	***Comment***
I-5 at NE 134th Street interchange	• Traffic signal coordination improvements • Interconnect traffic signals • Connect with Highway 99/I-5 Intelligent Transportation Corridor project	• Clark County • STP-TMA or CMAQ	Recent observations indicate portions of the corridor between I-5 and I-205 spill over into adjacent intersections, and some signal phases are skipped. Queues extend down northbound off-ramp and also into Salmon Creek Park-and-Ride.
I-5 at NE 179th Street interchange	• Additional on- and off-ramp lanes • Widening of NE 179th east and west of I-5 • Widening of Delfel Road	• TIB (previous improvements were funded with TIB funds) • Traffic Impact Fees • County Road Fund • Private development	The amphitheater once it is built, developments on each side of I-5 formerly in the Contingency zoning area, and expansion of the Fairgrounds will add traffic to this interchange in the short term.
I-5 at NW Pioneer Street/SR 501	• Traffic signals at ramp termini • Widen northbound off-ramp to two lanes	• WSDOT • Developers • Port of Ridgefield • City of Ridgefield	Some proportional share funding agreements with recent development at Ridgefield Junction are in place. With multiple funding partners and relative low capital cost (less than $2 million) project may score well with statewide competitive funding.
I-5 Southbound Mainline, north of NE 179th Street to I-205 Junction	• Install diagrammatic signage to indicate which lanes direct travelers to I-5 and to I-205	• WSDOT • Safety/HES	High-accident corridor due to high number of weaving accidents. Diagrammatic signs, similar to I-84 westbound approaching I-205, may reduce driver confusion for which lane to use for accessing I-5 or I-205, and also to NE 134th Street.
I-5 and I-205, several locations	• Install variable message signs	• WSDOT • Federal (STP, NHS) • Regional CMAQ, STP-TMA	Useful for diverting traffic to I-5 or I-205 in cases of incidents or extreme congestion on one facility or the other; also for local arterial detours as well as traveler information. Ties into the Vancouver Area Smart Trek (VAST) system.

Table 11. Funding Sources Available

Source	Eligibility	Uses	Restrictions
WSDOT Current Law Budget	WSDOT projects only	Program I2 (Safety), I3 (Bike Routes), P1 (Roadway), P2 (Bridge), P3 (Others)	State highway use only
WSDOT New Law Budget	WSDOT projects only	Referendum 49 and other new revenue projects	Limited to specific projects identified by State legislature.
Interstate Maintenance	WSDOT only: I-5 and I-205 only	Maintenance and preservation on the Interstate System	WSDOT use only. Cannot be used for Interstate widening.
National Highway System	WSDOT only: I-5, I-205, SR 501, and SR 502 only	Maintenance, safety, and improvements to NHS routes	Must be used on NHS routes only.
Surface Transportation Program – Transportation Management Area	Jurisdictions in Vancouver urban area	Through RTC: improvement projects on MTP classified arterials and transit routes	Projects must conform to the State Air Quality Implementation (or Maintenance) Plan
Surface Transportation Program - Competitive	All jurisdictions	Through TIB: innovative and competitive projects to encourage multimodal and freight mobility	
Congestion Mitigation and Air Quality Improvement – Regional	WSDOT, Clark County, C-TRAN, City of Vancouver	Air quality improvement projects; widening projects not eligible	Must be used for projects with direct air quality improvement; cannot be used for single-occupancy vehicle capacity improvement
Transportation Improvement Account - Urban	Cities and county within urban area	Arterial, multi-modal, multi-jurisdictional improvement projects that encourage economic development	WSDOT not eligible except through a local agency
Transportation Improvement Account - Pedestrian Facilities Program	Cities and county within urban area	Maximum $100,000 TIA contribution for pedestrian improvements only	WSDOT not eligible except through a local agency. Must be used for a pedestrian project only.
Urban Arterial Trust Account	Cities and county within urban area	Arterial improvement projects to alleviate congestion and reduce accident rates	WSDOT not eligible except through a local agency.
Transportation Improvement Account - Small Cities Account	Battle Ground, Ridgefield, and La Center only	Arterial roadway improvements and preservation for cities under 5,000 population	Only small cities (<5,000 population) eligible
Transportation Improvement Account	TIB Eligible projects	Local match (13.5%) for	Can only be used to match STP-funded projects, up to

Source	Eligibility	Uses	Restrictions
- STP-Match		STP-funded projects	amount made available by the Transportation Improvement Board
Surface Transportation Program - Enhancement	All jurisdictions	Scenic, historic, pedestrian, bicycle, landscaping, and other enhancements not part of transportation improvement project	Restricted to enhancements only. Cannot be used if enhancement already part of another project
Surface Transportation Program - Safety (HES)	All jurisdictions	Projects to reduce accident rates at high accident locations	Project must be primarily a safety improvement project
Federal Transit Administration - Section 5307	C-TRAN	Transit improvements	C-TRAN use only. Can be shifted to highway use only if all regional transit priorities identified in MTP and SIP have been funded.
Bridge Replacement	Local jurisdictions	Funding for replacement, restoration, or rehabilitation of bridges on- and off-system	Bridge replacement purposes only. Can be used for minor widening if identified as functionally obsolete.
Community Development Block Grant	Local jurisdictions	Projects to improve livability for low income areas	WSDOT not eligible.
Traffic Impact Fees	Clark County	Capacity projects identified in the capital facilities plan	Some interchange projects are currently included, but for local match only.

Table 12. FUNDING OUTLOOK

Source	I-5 MAINLINE	I-205 MAINLINE	NE 83rd Padden Interchange	I-5/I-205/NE 134th Street Interchange	139th Street Crossing (With HOV Ramps)	139th Street Crossing (No HOV Ramps)	154th Street Crossing	NE 179th Street Interchange	NE 219th Street Interchange	259th Street Crossing	NW Pioneer Street Interchange	NW La Center/NW 319th Street Interchange	Comment
Highway Funding													
WSDOT Mobility	○				○	○		○	○		○	○	Limited funding over 20-years, will compete with Puget Sound. I-5 is currently on the HSP unconstrained list; I-205 is not included in the HSP.
WSDOT HOV System	○				●								I-5 HOV Lane conceptual approval by WA Transportation Commission.
WSDOT Budget (Other)	○	○											Probably low priority, unconstrained list
Interstate Maintenance				○				○			○		Interstate preservation only; not for widening
National Highway System	●	○		○	●								
High Priority TEA-21	◘			○	○								These tend to be Congressionally designated projects in authorization acts.
Federal STP-TMA				●	●			○		○		○	Through RTC - needs to be a regional priority. Approx. $2.2 million per year available.
Federal STP-Competitive				●	●	○			○	○	◘	○	Statewide through Transportation Improvement Board (TIB). Projects typically are in the $5-10 million range.
Federal CMAQ					●								For air quality projects only - no highway or SOV capacity improvements allowed. Approx. $1.1 million per year available.
Federal Safety	○										○		For high-accident locations
Federal Enhancement			◘		○	○	○						Likely uses: bike lanes, sidewalks. Competitive: approx. $500-700,000 per year allocated to this region.
State Legislature Allocation	○	○		●					●				At this time, this would be the most promising funding source for these interchange projects.

Source	I-5 MAINLINE	I-205 MAINLINE	NE 83rd Padden Interchange	I-5/I-205/NE 134th Street Interchange	139th Street Crossing (Wi h HOV Ramps)	139th Street Crossing (No HOV Ramps)	154th Street Crossing	NE 179th Street Interchange	NE 219th Street Interchange	259th Street Crossing	NW Pioneer Street Interchange	NW La Center/NW 319th Street Interchange	Comment
State TIB/TIA				●	◐						◐		Projects seeking this source need funding partnerships, public/private partnerships, multimodal, and leveraged funding in order to be successful. Typical projects are in the $5-10 million range.
State TIB/UATA				◐	○	○	○	◐					Projects need to demonstrate arterial congestion, accidents, and geometric deficiencies. Typical projects are in the $3-7 million range.
State TIB/Small Cities												○	La Center project may be too expensive for this funding source. Typical projects are under $2 million.
State CRAB												○	Rural county arterials. Approximately $400,000 per year available.
Clark County Road Fund			○	●	○	○	○	●				○	Intended for County transportation priorities.
City Street Fund									◐	◐	◐	○	Includes Battle Ground, Ridgefield, and La Center
Traffic Impact Fees				◐			●	●		◐	◐	◐	Includes Clark County, Battle Ground, Ridgefield, and La Center
Private Development								●		●	●	○	Developer contributions or required mitigation.
Value Pricing	○												A high occupancy/toll (HOT) lane concept may provide revenue to fund improvements south of 134th Street into Central Portland.
Transit Funding													
Section 5307 (Formula)			○		○								Formula funds for buses to operate out of new Park-and-Rides or on new HOV facilities
Section 5309 (Special)			◐		◐			◐					
Special FTA/HCT Systems					●								
C-TRAN budget			◐		◐								

Source	I-5 MAINLINE	I-205 MAINLINE	NE 83rd Padden Interchange	I-5/I-205/NE 134th Street Interchange	139th Street Crossing (Wi h HOV Ramps)	139th Street Crossing (No HOV Ramps)	154th Street Crossing	NE 179th Street Interchange	NE 219th Street Interchange	259th Street Crossing	NW Pioneer Street Interchange	NW La Center/NW 319th Street Interchange	Comment
Comments	If the I-5 Trade Corridor Study includes a portion of this segment under the Corridors and Borders Program	I-205 Widening may be longer-term than 20-years	For ramp widening necessitated by Central County Park-and-Ride	Interchange improvements more of a local priority as opposed to WSDOT priority	Would include relocation of Salmon Creek Park-and-Ride to west site. 139th Street crossing significantly improves NE 134th Street flow.	Less likely to be funded if no HOV connection	Included in Salmon Creek Regional Road Plan	If new Fairgrounds Park-and-Ride is included in interchange improvements		Recommended as a local project	Some developer contributions already received	TIFs likely only if La Center's UGA extends to interchange	

(Blank)	No Potential
○	Minimal Potential
◘	Some Potential
●	Good Candidate

*This chart is intended for discussion purposes and designates potential sources, not established funding partnerships.

It is to be considered over the 20-year lifetime of the Corridor Plan.

9.0 NEXT STEPS

This study has resulted in a variety of short-term and long-term improvement recommendations for the corridor. Because multiple agencies are involved, the decision-making process involves different processes. These are outlined in Figure 13**.**

The Access Point Decision Reports began in November 2000 for the NE 134th Street, NE 179th Street, and proposed NE 219th Street interchanges. Reports are expected to be transmitted to FHWA in June 2001 with a decision from FHWA expected by fall 2001. If approved, the Environmental Impact Statements for these interchanges would begin in fall 2001 and be completed in fall 2002.

All of the corridor recommendations included in the Metropolitan Transportation Plan will be considered for prioritization by the Regional Transportation Council. Projects with high priority will receive priority-funding considerations, both locally and with regional support at the state legislature.

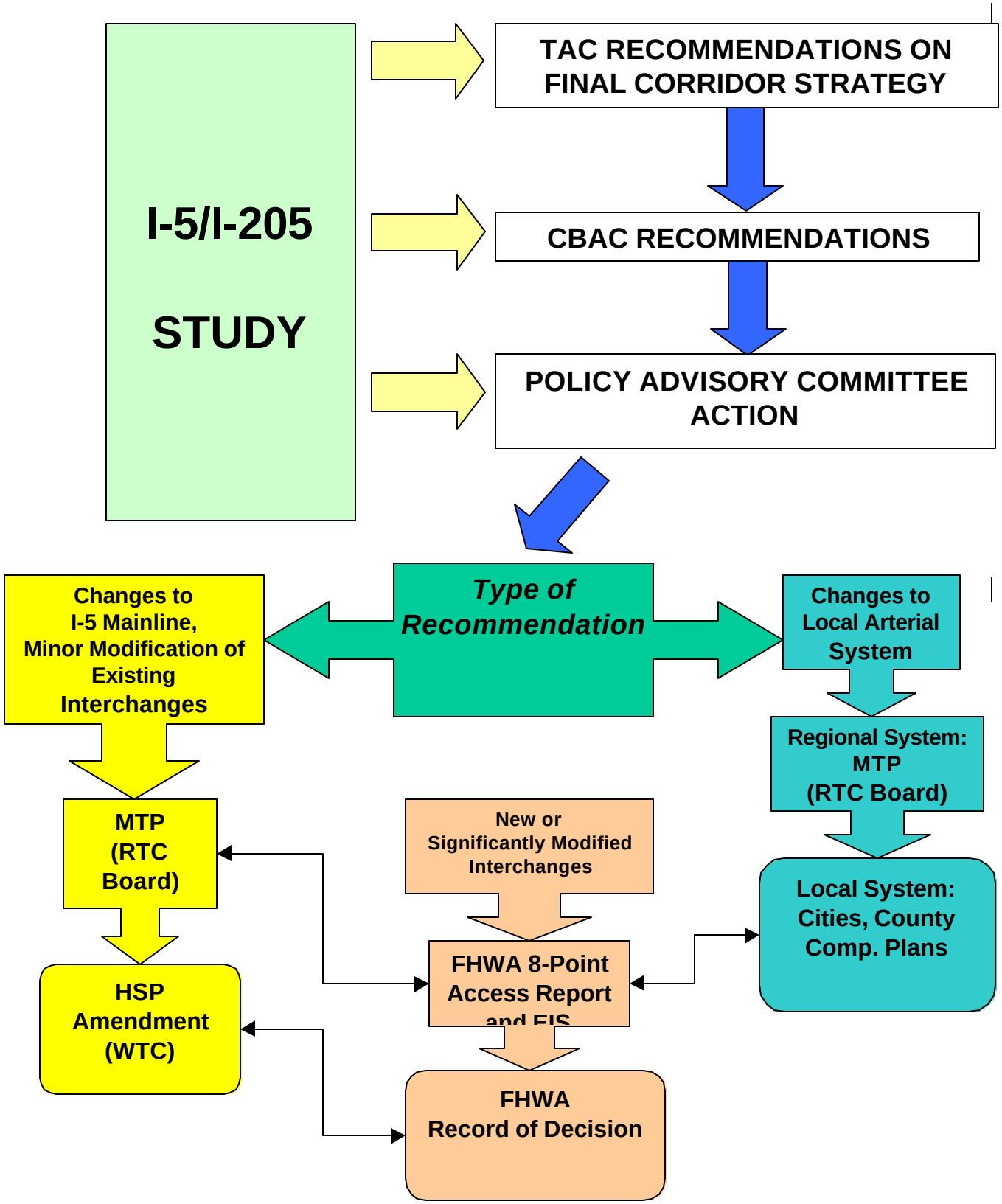
Short-term project recommendations may also be programmed in agency transportation improvement programs in the near future. If these short-term recommendations are accepted by the agencies for which these recommendations are made, there are a variety of local and state processes that need to be addressed before these projects can be funded.

Other Studies

Figure 13 shows other projects and studies with which the I-5/I-205 North Study has been coordinating. The recommendations from this study are being forwarded to these other studies.

The update process for the County's and cities' comprehensive plans began in late 2000. The findings and recommendations from this study will be forwarded to the comprehensive planning process.

Figure 13. I-5/I-205 STUDY DECISION-MAKING PROCESS



APPENDIX A
Interchange Alternative Evaluations

Table 10. Interchange Alternatives Evaluation

Interchange/ Alternative	Cost ($Millions)	B/C Ratio	VMT/VHT Benefits (Compared to No-Build: $Million)	Plan Consistency	Transportation Impacts	Land Use	Environmental
NE 134th Street Options (See previous evaluation chart)	$32-66	3.0-5.8	$170-190	Mostly consistent with County's Comprehensive Plan. Would require amendment to County's Comprehensive and Capital Facilities Plans to change NE 134th Street from a 4-lane to a 6-lane arterial or to add 139th Street crossing of I-5.	Alleviates High-Accident Location at NE 134th ramps and congestion on NE 134th Street. 139th Street improves local circulation and congestion on NE 134th Street. HOV ramp options encourage use of transit and carpooling.	Within urban growth area. Only land use issues are whether concurrency will allow development to continue and where the Park-and-Ride goes. All of these packages will enable the Concurrency requirements to be met.	Potential impacts: 0.4 hectares of overlapping Riparian and Non-Riparian habitat and estimated 0.2 hectares of Riparian habitat. Potential impacts to one listed plant species and one or more fish species. Two hazardous materials sites lie in the footprint of extending NE 20th Avenue to Highway 99. Some wetlands probable at potential sites for the Park-and-Ride relocation.
STUDY RECOMMENDATIONS 1. **No Reconstruction of I-5/I-205 Connection** • Current and future operations and safety are reasonable • Cost adds to regional funding shortfall • Adding diagrammatic advanced guide signs should respond to driver expectancy of southbound diverge • Moving the southbound I-5 off-ramp to NE 134th Street (from I-205) improves driver expectation • Adding/completing auxiliary lane between NE 179th Street and I-205 in each direction should alleviate queuing due to weaving and merging 2. **Construct 139th Street extension between NE 10th and 20th Avenues** • Cost of structure ($13 million) is approximately the same as cost of widening NE 134th Street to 6 lanes ($12 million) • Provides significant relief to NE 134th Street and is a better investment than adding lanes on NE 134th Street • Provides significant level of Post-2020 capacity • Could serve to defer need to widen/improve NE 10th Avenue between 139th and 154th upon completion of 154th Street crossing • Provides local traffic circulation • Improves access to existing Park-and-Ride 3. **Relocate the Salmon Creek Park-and-Ride to a site west of I-5**							
NE 219th Street interchange alone	27.9	4.60	119.1	Interchange included in County's Arterial Atlas but not accounted for in the Comprehensive Plan's Land Use element. Planning and right-of-way for interchange included in the MTP. Interchange included in the HSP.	See Access Report matrix	Impacts on residential growth inconclusive. Without land use controls, commercial development pressure at the interchange expected. Small potential for industrial development at the new interchange but most is likely to be drawn to Ridgefield. The new interchange is not likely to increase residential development within Battle Ground. Very likely to bring pressure to expand UGA but unsure whose. Inconclusive impacts on downtown Battle Ground. Impacts could be mitigated with the application of rigorous planning strategies.	Improvements are likely to impact wetlands (0.3 hectares), Riparian Habitat (4.7 hectares), and listed species. Two hazardous materials sites may be impacted.

Interchange/ Alternative	Cost ($Millions)	B/C Ratio	VMT/VHT Benefits (Compared to No-Build: $Million)	Plan Consistency	Transportation Impacts	Land Use	Environmental
NE 219th Interchange with extension to Hillhurst	88.8	2.11	173.8	Interchange included in County's Arterial Atlas but not accounted for in the Comprehensive Plan's Land Use element. Planning and right-of-way for interchange included in the MTP. Interchange included in the HSP. Extension to Hillhurst would be a rural major collector. It is likely inconsistent with the County's comprehensive plan and is not included on any local or regional plan.	See Access Report matrix.	Impacts on residential growth inconclusive. Without land use controls, commercial development pressure at the interchange expected. Small potential for industrial development at the new interchange but most is likely to be drawn to Ridgefield. The new interchange is not likely to increase residential development within Battle Ground. Very likely to bring pressure to expand UGA but unsure whose. Inconclusive impacts on downtown Battle Ground. Impacts could be mitigated with the application of rigorous planning strategies.	Extension to the west will likely present noise impacts to existing large-lot residential development. Hydric soils are mapped in the footprint of NE 219th just east of Hillhurst, which may indicate that wetlands are present. Interchange impacts similar to NE 219th Interchange alone.
Both NE 179th and NE 219th Interchanges	78.5	2.64	194.1	NE 219th Interchange included in County's Arterial Atlas but not accounted for in the Comprehensive Plan's Land Use element. Planning and right-of-way for NE 219th interchange included in the MTP. Interchange included in the HSP.	Alleviates High-Accident Location at NE 179th Street ramps and at Gee Creek Rest Area. See Access Report matrix.	Impacts on residential growth inconclusive. Without land use controls, commercial development pressure at the interchange expected. Small potential for industrial development at the new interchange but most is likely to be drawn to Ridgefield. The new interchange is not likely to increase residential development within Battle Ground. Very likely to bring pressure to expand UGA but unsure whose. Inconclusive impacts on downtown Battle Ground. Impacts could be mitigated with the application of rigorous planning strategies.	Improvements to both interchanges are likely to impact wetlands, Riparian Habitat, listed species, and hazardous materials sites. The Gee Creek rest area at NE 219th includes extensive Riparian habitat and a culvert with potential for enhancement. Culverts at NE 179th are too complex to allow for fish passage. No cultural resource sites have been documented for either interchange, although high potential exists for stream channels and wetlands.
NE 179th Street Single Point Urban Interchange (SPUI)	59.6	1.64	93.7	SPUI design instead of Salmon Creek/Fairgrounds Regional Road Plan (SCFGRRP) design may require administrative amendment to County's comp. Plan	Alleviates High-Accident Location at NE 179th Street ramps. Also provides some additional capacity to accommodate Amphitheatre trips.		Impacts to habitat include 0.8 ha of potential wetlands and 2.7 ha of Riparian habitat. One listed plant and one or more listed fish may be impacted. Culvert improvement is not recommended. Eight hazardous materials sites lie in the footprint of road improvements.
NE 179th Street SPUI with flyovers	93.9	2.14	196.9	SPUI design instead of SCFGRRP design may require administrative amendment to County's comp. Plan. Flyovers may require changes to County's Capital Facilities Plan. HSP may need to be modified to reflect the change from NE 219th interchange to NE 179th flyovers if this is the preferred alternative.	Alleviates High-Accident Location at NE 179th Street ramps. Also provides significant interchange capacity to accommodate Amphitheatre trips.		Environmental impacts are the same as without flyovers, except that ten hazardous materials sites and 2.8 ha of Riparian habitat would be impacted.

Interchange/ Alternative	Cost ($Millions)	B/C Ratio	VMT/VHT Benefits (Compared to No-Build: $Million)	Plan Consistency	Transportation Impacts	Land Use	Environmental
STUDY RECOMMENDATIONS							
1. Advance NE 219th Interchange to Access Report Stage • Has high Benefit/Cost ratio and is a Corridor Strategy which shows benefits • Provides higher B/C ratio than NE 179th Street alone and offsets costs of flyovers at that interchange • Serves primarily regional trips • Has legislative mandate and local support • Growth management issues would need resolution and/or mitigation • Extension of NE 219th to Hillhurst is a post-2020 alternative; design interchange so as not to preclude extension to Hillhurst • Conduct NEPA/SEPA work to mitigate environmental impacts **2. Retain two NE 179th Street interchange design options as part of Access Report preparation** **3. NE 219th Street extension to Hillhurst Road is a Post-2020 consideration. Extending a frontage road to 214th Street at Delfel Road provides 20-year capacity.**							
NW Pioneer Street-interchange improvements only	8.0	4.74	33.0	Consistent with all plans.	Alleviates High-Accident Location at the NW Pioneer Street ramps.	Location of this interchange and availability of land will likely encourage continued industrial and commercial development at the interchange. The proposed interchange improvements will play an important role in industrial and commercial development at the interchange and in residential development in Ridgefield UGA. Interchange improvements may draw residential growth east of Ridgefield along SR 501 corridor.	Hydric soils are mapped in the northwest quadrant of the split diamond, indicating potential presence of wetlands. Riparian Priority Habitat is mapped on both sides of the northern half of the diamond. No listed species or culverts have been identified for the interchange. Hazardous materials information has not yet been provided.
NW Pioneer Street interchange improvements plus 259th Street crossing	13.8	3.00	36.5	Crossing not shown in any plans.	Alleviates High-Accident Location at the NW Pioneer Street ramps.	Location of this interchange and availability of land will likely encourage continued industrial and commercial development at the interchange. The proposed interchange improvements will play an important role in industrial and commercial development at the interchange and in residential development in Ridgefield UGA. Interchange improvements may draw residential growth east of Ridgefield along SR 501 corridor.	The 259th Street crossing would likely impact wetlands east of I-5 and 500 meters west of I-5. Listed species have not been identified for the footprint of 259th. Location of hazardous materials sites have not been investigated.
NW Pioneer Street split diamond with 259th Street crossing	20.4	1.46	29.8	Split diamond and crossing are not shown in any plans.	May alleviate High-Accident Location at NW Pioneer Street ramps. Would require Access Report due to modification of interchange access points.	Location of this interchange and availability of land will likely encourage continued industrial and commercial development at the interchange. The proposed interchange improvements will play an important role in industrial and commercial development at the interchange and in residential development in Ridgefield UGA. Interchange improvements may draw residential growth east of Ridgefield along SR 501 corridor.	The 259th Street crossing would likely impact wetlands east of I-5 and 500 meters west of I-5. Listed species have not been identified for the footprint of 259th. Location of hazardous materials sites have not been investigated.

Interchange/ Alternative	Cost ($Millions)	B/C Ratio	VMT/VHT Benefits (Compared to No-Build: $Million)	Plan Consistency	Transportation Impacts	Land Use	Environmental
NW Pioneer Street split diamond with 259th Street extension from NE 10th Avenue to Ridgefield Junction	24.4	1.47	31.0	259th Street extension not shown in County's Comprehensive Plan, and is likely inconsistent as it would probably be designated a rural collector and would be inconsistent with the rural arterial spacing policy in the County's road standards.	May alleviate High-Accident Location at NW Pioneer Street ramps. Would require Access Report due to modification of interchange access points. Extension of 259th Street would provide collector-level circulation for expansion of Ridgefield's UGA southward to add industrial land base.	Location of this interchange and availability of land will likely encourage continued industrial and commercial development at the interchange. The proposed interchange improvements will play an important role in industrial and commercial development at the interchange and in residential development in Ridgefield UGA. Interchange improvements may draw residential growth east of Ridgefield along SR 501 corridor.	Extending 259th would impact wetlands 500 meters west of I-5. Two Riparian Habitat areas would be impacted. Listed species have not been identified within the footprint of 259th. Location of hazardous materials sites have not been investigated.
STUDY RECOMMENDATIONS **1. Advance improvements to existing interchange as a Corridor Strategy** • Has high Benefit/Cost ratio and is a Corridor Strategy which shows benefits • Provides higher B/C ratio than other interchange options • Southbound frontage road access could be provided with design to mitigate Timm Road closure **2. Forward consideration of a 259th Street crossing to the local planning process as a local circulation improvement** • Has good B/C ratio • Provides local circulation • Ties in east and west of I-5 industrial land bases • Serves Post-2020 Ridgefield development vision **3. Eliminate split diamond interchange options** • Although B/C ratios >1.0 they do not show the benefits that the other options do • Extension of 259th Street west from NE 10th Avenue likely inconsistent with County's Comprehensive Plan but could be Post-2020 consideration • Interchange improvements could be designed so as not to preclude this option for Post-2020							
NW 319th Street interchange	5.0			Interchange improvements would be consistent with Comprehensive Plan.	Ramp widening and overpass widening needed to accommodate 20-year travel demand to and from La Center.	Interchange improvements unlikely to affect residential or commercial growth. Unclear as to impact on industrial growth. Unlikely that improving the interchange will cause pressure to expand La Center's UGA.	Depending on the extent of improvements, two wetland areas and three Riparian areas may be impacted. Listed species are not likely to be impacted. Two hazardous materials sites (UST's) may be impacted. Hazardous materials sites are located adjacent to the interchange right-of-way. A blocked culvert is located approximately 0.5 miles north of the interchange at mile marker 16.8. Culvert reconstruction is not recommend since this tributary to the East Fork Lewis River is unlikely to support anadromous fish due to a steep gradient and little water. McCormick Creek is in the vicinity of the interchange and has been found to support coastal cutthroat, steelhead (winter-run), and Coho. No archaeological sites have been documented within the right-of-way of the interchange.

Interchange/ Alternative	Cost ($Millions)	B/C Ratio	VMT/VHT Benefits (Compared to No-Build: $Million)	Plan Consistency	Transportation Impacts	Land Use	Environmental
I-205/NE 83rd Street Interchange	$2-3			Interchange improvements would be consistent with Comprehensive Plan.	Northbound off-ramp needs to be widened to two exiting lanes to accommodate 20-year travel growth. WSDOT may want to consider providing for two lanes exiting this ramp to the eastbound Padden Parkway, one of the lanes potentially serving the proposed Central County Park-and-Ride site.	Within urban growth area. Only land use issues are whether concurrency will allow development to continue and development of the Central County Park-and-Ride.	It does not appear that any of the environmental parameters would be directly affected, except possibly for listed fish in Curtin Creek and Hazardous Materials Site #50. Two culverts located at the intersection of NE 78th and I-205 have the potential to be reconstructed for the restoration of fish habitat. Listed fish that have been found in Curtin Creek include coastal cutthroat, steelhead (winter-run), and Coho. No archaeological resources have been documented for this interchange, although a high potential for archaeological sites exist near streams and associated wetlands.
I-205/NE 50th Avenue interchange	$20-30			New interchange, would require Federal 8-point Access Decision Report. Not included in the Comprehensive Plan. County has no policies on reviewing new interchange pertinent to Comprehensive Plan.	Analysis shows bulk of traffic served would be within one mile of the interchange.	Although the interchange is within the urban growth area, it is near the edge of the UGA.	Noise is a predominant issue in this primarily residential area.

STUDY RECOMMENDATIONS

1. **Improve NW 319th Street/NW La Center Road interchange in its current location**
   - Low traffic volumes on frontage roads do not warrant realignment and intersection separation at this time
   - Widen northbound off-ramp, southbound on-ramp, and overpass
   - May need to revisit this recommendation if La Center's UGA expands toward the interchange.
2. **Widen NE 83rd Street/Padden Parkway ramps**
   - Northbound off-ramp to two lanes (one to eastbound NE 83rd one to westbound NE 83rd to accommodate 20-year demand
   - Widen southbound on-ramps to accommodate ramp metering
   - WSDOT should consider second northbound-to-eastbound exit lane (and signalizing at NE 83rd Street) to serve proposed Central County Park-and-Ride
   - May need to further examine spacing of ramp termini and Park-and-Ride entrance along NE 83rd Street
3. **No further consideration for a new interchange on I-205 at NE 50th Avenue**
   - Serves primarily local traffic and not regional/interstate traffic that FHWA requires
   - 20-year demand can be accommodated by improvements to NE 83rd Street interchange and arterial system
   - May need to revisit this recommendation if UGA expands northward along NE 50th Avenue and land uses generating regional trips are adopted as part of this expansion

Because the ultimate administration and oversight of the Interstate System lies with the United States Department of Transportation (Federal Highway Administration), and proposal for a new interchange must receive their approval before a new or modified interchange project can be implemented. To assist with the evaluation and recommended direction for the proposed NE 219th Street interchange, an evaluation matrix was completed which summarized each point of the federally-required Access Point Decision Report. This Eight-Point report is a required document in the process to gain federal approval for a new Interstate access point.

Table 11. ACCESS POINT DECISION MATRIX

I-5/SR 502 Interchange

Criterion	No-Build	Improvements to Existing Interchanges and Parallel Arterials	NE 179th Rebuild (SPUI) with Flyovers	NE 219th Interchange (New)
Review Category	None	Part of 8-point access process	Modified Access	New Access
FHWA Review Level	None	As part of 8-point access report	Division, probably National	National
Point 1: Purpose and Need	N/A	• Needed for 8-point access report	• Concurrency • Interchange Capacity: traffic queuing onto I-5 mainline even with SPUI • Battle Ground traffic • Fairgrounds Traffic • HACs: I-5 (NE 179th to Gee Creek)	• Concurrency • Interchange Capacity at NE 179th Street: traffic queuing onto mainline even with SPUI • Access to Battle Ground • BG Economic vision • HACs: SR 502 (NE 179th to NE 219th), I-5 (NE 179th to Gee Creek)
Point 1: Purpose (Trip Type must be primarily regional or Interstate)	• Local and Regional • At NE 179th 19% of exiting trips destined for Battle Ground area • At NE 179th 7% of trips destined for Ridgefield • At NE 179th 1% of trips destined for north of Carty Road • At NE 179th 31% of trips have destination within one mile of interchange	• **Local and Regional** • At NE 179th, 19% of exiting trips destined for Battle Ground area • At NE 179th, 7% of trips destined for Ridgefield • At NE 179th, 1% of trips destined for north of Carty Road • At NE 179th, 31% of trips have destination within one mile of interchange	• **Local and Regional** • At NE 179th, 19% of exiting trips destined for Battle Ground area • At NE 179th, 7% of trips destined for Ridgefield • At NE 179th, 1% of trips destined for north of Carty Road • At NE 179th, 31% of trips have destination within one mile of interchange	• **Regional** • At NE 219th (with extension to Hillhurst), 33% of exiting trips are destined to Battle Ground • At NE 219th (with extension to Hillhurst), 38% of trips are destined for Ridgefield • At NE 219th (with extension to Hillhurst), 16% of trips are destined for north of Carty Road • At NE 219th (with extension to Hillhurst), 2% of trips have destination within one mile of interchange • 89% of trips using the interchange originated on I-5 or I-205 south of NE 134th Street
Point 2: Alternatives to Access	N/A	• Needed for 8-point access report	• Improvements to adjacent arterials studied • This is an alternative • Adding capacity to SR 503 does not affect I-5 in this location • 154th Street crossing has no significant impact on NE 179th interchange traffic • Improvements to adjacent interchanges (NE 134th and NW Pioneer Street) have little or no effect on NE 179th interchange volumes	• Studied as part of report
Point 3: Operational and Safety Impacts	HACs not corrected Queues extending onto mainline will exacerbate current high-accident condition at NE 179th	• NE 10th at NE 219th will operate at LOS E in PM peak even with improvements • Queues likely to extend onto mainline • Queuing may be exacerbated with higher interchange volumes due to arterial improvements facilitating access to/from interchanges	• Improves I-5 HAC between NE 179th Street and SR 502 but not SR 502 HAC between NE 179th and NE 219th • NE 10th at NE 219th will operate at LOS E in PM peak even with improvements	• Improves I-5 HAC at NE 179th and Gee Creek locations • Improves SR 502 HAC between NE 179th and NE 219th • NE 10th at NE 219th operates at LOS D

Criterion	No-Build	Improvements to Existing Interchanges and Parallel Arterials	NE 179th Rebuild (SPUI) with Flyovers	NE 219th Interchange (New)
Point 4: Access Connections (connections to public road) and Design	Connects to public road	Connects to public road	• Connects to public road • Access management in interchange area is highly recommended • Access management will be difficult north on SR 502 where flyovers will touch down • Access management still recommended on SR 502 east of NE 10th Avenue	• SR 502 extension would be public road • Access management easily achieved in interchange area with adoption of access plan for SR 502 extension • Access management still recommended on SR 502 east of NE 10th Avenue
Point 5: Impacts on Interstate System	Queues likely to extend onto I-5 mainline at NE 134th, NE 179th, and NW Pioneer Street interchanges	Queues even more likely to extend onto I-5 mainline at NE 134th, NE 179th, and NW Pioneer Street interchanges as arterial improvements facilitate better flow to/from interchanges	No queues likely	No queues likely
Point 5: Impacts on Interstate LOS (cannot degrade LOS class) 1. V/C I-5 north of NW Pioneer Street 2. V/C I-5 north of NE 179th 3. V/C I-5 south of NE 179th 4. V/C I-5 south of NE 134th 5. V/C SR 502 north of NE 179th	1. 0.63 LOS C 2. 0.78 LOS C/D 3. 1.08 LOS F 4. 0.86 LOS D 5. 1.50 LOS F	1. 0.62 LOS C 2. 0.77 LOS C/D 3. 1.02 LOS F 4. 0.86 LOS D 5. 0.94 LOS E No effect on I-5. Improvement to SR 502.	1. 0.62 LOS C 2. 0.76 LOS C 3. 1.04 LOS F 4. 0.87 LOS D 5. 1.00 LOS E/F No LOS effect to I-5. Improvement to SR 502.	1. 0.62 LOS C 2. 0.86 LOS D 3. 1.07 LOS F 4. 0.89 LOS D/E 5. 0.71 LOS C Small (1/2 LOS class) impacts on I-5 operations. Significant improvements to SR 502.
Point 6: Coordination with Transportation and Land Use Plans	• This alternative will not ensure adequate transportation capacity for future development under current land use plan (Concurrency) • Interchange congestion may impact success of NE 179th Street Park-and-Ride	• Would accommodate NE 179th Street Park-and-Ride but congestion may impact its operation • Widening of 72nd Avenue and SR 503 in rural areas inconsistent with County's Comprehensive Plan and arterial atlas	• Most likely consistent with County's Comprehensive Plan and MTP • Would accommodate NE 179th Street Park-and-Ride • Would best accommodate Amphitheatre traffic	• Interchange is included in County's Arterial Atlas but not in land use element of the Comprehensive Plan • Planning and right-of-way included in MTP • Would accommodate NE 179th and NE 219th Park-and-Rides
Point 7: Coordination with Development	This alternative will not ensure adequate transportation capacity for future development under current land use plan (Concurrency)	• NE 179th Street interchange and SR 502 corridor will still operate at LOS E/F • LOS E/F may inhibit development (Concurrency)	• Flyovers north of NE 179th to touchdown may inhibit development along NE 10th Avenue (loss of access)	• New interchange is likely to create pressure for commercial development in interchange area, contrary to GMA. • New interchange is likely to create pressure to expand UGA, but uncertain whose • New interchange unlikely to significantly affect industrial development in BG • Interchange provides adequate transportation capacity in the corridor for current land use plan (Concurrency). • No significant land use benefits from construction.
Point 8: Planning and Environmental Analysis	Blockages of fish passages not corrected	Blockages to fish passages on I-5 not corrected	• Some wetlands impacts in vicinity of interchange • Blockages to two fish passages near NE 179th interchange corrected	• Significant potential for wetlands and riparian corridor impacts • With NE 179th SPUI, blockages to two fish passages near NE 179th interchange corrected • NE 219th interchange will likely correct blockages to three fish passages

APPENDIX B
Cost Estimates and Preliminary Designs

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